The impact of international immigration and cultural diversity on economic performance, public attitudes and political outcomes in European regions

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THE IMPACTS OF INTERNATIONAL IMMIGRATION AND CULTURAL DIVERSITY ON ECONOMIC PERFORMANCE, PUBLIC ATTITUDES AND POLITICAL OUTCOMES IN EUROPEAN REGIONS

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Chapter 1
Introduction

International migration is a complex and dynamic phenomenon with wide-ranging implications for the receiving countries. As implied by the title, this doctoral dissertation attempts to approach the subject of international migration from different angles and perspectives. In particular, each of the three main empirical chapters of this dissertation investigates a specific topic of the economic, social and political consequences of international migration in the European region. This is in order to highlight the importance of multidimensional research that is able to give a bird's eye view on the theme.

The introductory chapter first presents some key statistics and figures on the number of international migrants in Europe that will improve understanding of the phenomenon. Next, so as to position the dissertation in a broader context, a brief summary of the impact of international migration on the host countries is provided. The introduction ends with an overview of the three empirical studies that compose the main body of the dissertation.

1.1 Statistics and Trends of International Migration in Europe

As stated in the *International Migration Report 2017* published by the United Nations, the number of international migrants around the world has continued to grow over the last decades, reaching 258 million in 2017. Of this number, according to the most recent migration statistics from Eurostat, more than 60 million migrants live in countries that currently comprise the European Union, that is, 28-member states, including Norway and Switzerland (henceforth Europe). In other words, Europe hosts almost one in four of all international migrants. The following table presents the fifteen European countries hosting the largest number of international migrants in 2017. Apart from the total number of foreign-

born, the table includes the number of immigrants coming from countries outside of the European region, while both numbers are also expressed as a share of the total population of the corresponding country and the total foreign-born population of Europe.

Table 1.1 Stock of International Migrants in European Countries in 2017

Country	Foreign-born population **(i)**	Foreign-born population from outside of Europe **(ii)**	**(i)** as a share of the total population of the country	**(ii)** as a share of the total population of the country	**(i)** as a share of the foreign-born population of Europe	**(ii)** as a share of the foreign-born population of Europe
Germany	12,105,436	7,255,534	14.7%	8.8%	20.0%	12.0%
United Kingdom	9,293,729	5,680,830	14.1%	8.6%	15.4%	9.4%
France	8,155,670	5,935,003	12.2%	8.9%	13.5%	9.8%
Italy	6,053,960	4,216,330	10.0%	7.0%	10.0%	7.0%
Spain	6,024,698	4,081,245	12.9%	8.8%	10.0%	6.7%
Switzerland	2,391,480	977,296	28.4%	11.6%	4.0%	1.6%
Netherlands	2,137,234	1,556,635	12.5%	9.1%	3.5%	2.6%
Belgium	1,876,726	1,000,229	16.5%	8.8%	3.1%	1.7%
Sweden	1,783,179	1,242,776	17.8%	12.4%	2.9%	2.1%
Austria	1,649,008	909,409	18.8%	10.4%	2.7%	1.5%
Greece	1,250,863	905,244	11.6%	8.4%	2.1%	1.5%
Portugal	876,300	636,104	8.5%	6.2%	1.4%	1.1%
Norway	799,797	448,633	15.2%	8.5%	1.3%	0.7%
Ireland	796,410	195,858	16.6%	4.1%	1.3%	0.3%
Denmark	668,090	439,690	11.6%	7.6%	1.1%	0.7%
Europe (Total)	60,465,209	38,295,295	11.5%	7.3%	100%	63.3%

Source: Self-calculations based on Migration Statistics of Eurostat.

According to the statistics in the table, international migrants represent 11.5 per cent of the total population of Europe. It appears that Germany, UK and France host almost half of the total foreign-born population. In addition, we see that nearly two thirds of international migrants who live in European countries come from regions outside of Europe.

Although the stock of international migrants provides a clear picture of the existing situation in Europe, net migration flows (immigrants minus emigrants) help us to understand how this phenomenon will develop in the future. In his book, *Exodus*, Collier (2013) devotes

a full chapter to why immigration accelerates. The author argues that the income gap between developed and developing societies, the economic prosperity of the country of origin and the size of diaspora in the host country are the three main determinants of international migration. Similarly, Goldin *et al*. (2011) claim that worldwide we should expect a higher volume of international migrants in the next decades. Their argument is based not only on the growing supply factors of migration, such as wider global inequality and economic growth in less developed regions, both of which motivate and enable people to relocate, but also on the increasing demand for both low- and high-skilled labour force from rich countries. Table 1.2 below shows annual net migration statistics for Europe in the time period 2007-2016.

Table 1.2 Annual net migration statistics for Europe in the time period 2007-2016

Year	**EU-28** (plus Norway & Switzerland)	**EU-15** (plus Norway & Switzerland)	**Acceding countries in 2004** (Ten countries)	**Acceding countries in 2007** (Bulgaria & Romania)	**Acceding countries in 2013** (Croatia)
2007	1,645,735	2,037,592	74,071	-474,822	8,894
2008	1,351,902	1,459,527	68,088	-181,940	6,227
2009	820,358	944,322	4,171	-129,023	888
2010	872,296	1,018,166	-75,832	-65,783	-4,255
2011	826,180	902,396	-19,504	-52,661	-4,051
2012	1,008,338	1,041,715	-5,473	-23,999	-3,905
2013	1,882,603	1,961,806	-59,324	-14,995	-4,884
2014	1,217,761	1,254,438	-3,906	-22,551	-10,220
2015	1,954,305	2,024,646	-1,619	-50,777	-17,945
2016	1,318,652	1,403,993	5,197	-68,087	-22,451
Total	12,898,130	14,048,601	-14,131	-1,084,638	-51,702

Source: Self-calculations based on Migration Statistics of Eurostat.

We note that during the decade 2007-2016, Europe added about 13 million migrants to its population or, put differently, 1.3 million, on average, per annum. This number is even higher, exceeding 14 million migrants, when we focus only on the member countries of the EU-15, including Norway and Switzerland. The reason for this is the large outflow of migrants from the most recently acceding countries that are less economically powerful and

developed. These migrants go mainly to the rest of Europe due to the regime of free labour mobility that followed their accession.

As the above statistics indicate, the phenomenon of international migration to the countries of Western and North Europe is a growing issue. Considering also the recent refugee crisis and the fact that the number of asylum applications in Europe has increased considerably over the last few years, reaching a high of about 1.3 million first-time asylum applicants in 2015, we expect the stock of foreigners to rise even more in the near future. Therefore, examining the consequences of international migration for the main host European countries is a subject of vital interest and importance.

1.2 Implications of International Migration for Host Countries

No single chapter could fully cover all the effects of international migration for host countries, but this section provides a brief overview of these effects in order to understand the wider context in which this dissertation is situated.

Economic Implications: With respect to the economic consequences, immigration has a significant impact on the labour market by affecting the potential wages and the employment opportunities of natives. On one hand, immigration may depress the wages and decrease the job opportunities of unskilled natives or those workers for whom migrants' labour can be considered a possible substitute (Card, 2001; Borjas, 2003; Card, 2005; Dustman et al., 2013). On the other hand, immigration can have a positive effect on the average wage of native workers, as many of them benefit from task specialization and skill complementarities among natives and immigrants (Peri and Sparber, 2009; Ottaviano and Peri, 2012; Docquier et al., 2013; Peri, 2014).

Besides immigrants' profound impact on the labour market, international migration has important fiscal consequences for host countries due to the redistributive effects of taxes

and benefits. The fiscal impact of immigration depends on the contributions the immigrants pay and the public benefits they receive through their participation in the social security and welfare system of the host country (Lee and Miller, 2000; Card *et al*. 2007; Dustman *et al.*, 2010; Rica *et al.*, 2013). Furthermore, immigration can benefit the economy of host countries through trade and foreign direct investment (FDI). International migration favours trade and FDI by reducing bilateral transaction costs. More specifically, immigrants increase bilateral trade flows and FDI by facilitating communication and information exchanges among firms or by lowering set-up costs in the destination country (Gould, 1994; Rauch and Trindade, 2002; Lewer and Van den Berg, 2009; Docquier and Lodigiani, 2010; Kugler and Rapoport, 2011).

Finally, international migration may affect the economy of host countries by increasing their cultural diversity. In some respects, diversity can be beneficial and enrich a country's economy. Greater diversity brings greater variety of skills Lazear (1999), leads to higher levels of creativity (Page, 2008) and generates knowledge spillovers (Glaeser et al., 1992; Audretsch and Keilbach, 2007). Therefore, through cultural diversity, international migration can enhance innovation and increase productivity, both at the micro/firm (Parrotta et al., 2014b; Kemeny and Cooke, 2017a; Mitaritonna et al., 2017) and the macro/country level (Niebuhr, 2010; Sparber, 2010; Ozgen et al., 2011; Peri, 2012; Bellini et al., 2013). However, cultural diversity can generate potential costs for the economy. Communication problems and cooperation difficulties derived from linguistic and other intercultural barriers (Lazear, 1999; Richard et al., 2002), as well as lower trust among culturally different individuals (Alesina and La Ferrara, 2002), might lead to a poor group performance. Thus, past research has shown that workforce diversity in terms of ethnicity could have a negative or non-effect on firm productivity (Parrotta et al., 2014a; Trax et al., 2015). Similarly, at a country level, in some cases, ethnic diversity and polarization are found to decrease economic

growth and development (Alesina and La Ferrara, 2005; Montalvo and Reynal-Querol, 2005; Ratna et al., 2009).

Social Implications: Apart from the important economic effects, large-scale immigration has a wide range of social impacts on host countries. In respect of the labour market, international migration not only affects the wages and employment opportunities of native workers but also alters the occupational division of labour. Immigrant employment changes the ethnic division of labour in the host country, as foreign workers are overrepresented in some specific sectors, but it can also lead to new occupational niches (Foner, 2012). Moreover, some previous research has indicated that increases in local immigrant labour supply are positively associated with native internal migration decisions (Borjas, 2006). Thus, massive immigration may induce natives to relocate because of the depression of their wages or a decrease in employment opportunities.

Nevertheless, natives may respond to immigration by relocating because of several other immigrant-related issues. For instance, an argument often invoked against immigration is that immigrants increase crime in the country. Across Europe, for a few reasons, foreigners are highly overrepresented in prisons (Collier, 2013). Therefore, public discussion of social problems, such as high crime rates or other security threats, stereotypically associated most often with new immigration, can cause natives to relocate to other places. Furthermore, international migration influences the local society by changing the composition of the host country's population. The demographic impact of international migration is not only caused by immigrant inflows, but also by relatively high fertility levels of immigrants along with the fact that many of them are in their procreative age. Therefore, immigrants can act as a solution to a declining and ageing population in the host country (Lutz and Scherbov, 2007). However, some natives are likely to be concerned about 'compositional amenities' associated with the presence of common language, religion and customs in their neighbourhoods,

schools or workplaces due to increasing immigration (Card *et al*., 2012). In addition, existing literature has revealed some evidence that ethnically mixed countries are correlated with inferior public goods provision (Alesina et al.,1999; La Porta et al. (1999).

Moreover, as already mentioned, international migration increases society's diversity. From the social perspective, diversity brings many benefits and advantages but can also be problematic (Collier, 2013). Multicultural societies provide a great variety of goods and services that offer numerous choices to the local population. Moreover, cultural pluralism enables different values and beliefs to coexist, which implies that positive aspects of one culture may be adopted by others, thus establishing a better society. However, cultural distance between natives and immigrants may also negatively influence the public attitude. The different values and perceptions held by people coming from other ethnic backgrounds can be perceived as a threat to the national identity and culture of the native population (O'Rourke and Sinnott, 2006; Dustmann and Preston, 2007). Finally, past research has also shown that immigration-driven diversity can erode social capital in host societies by decreasing the level of social cohesion and by reducing generalized social trust (Alesina and La Ferrara, 2002; Putman, 2007; Hooghe, 2007; Kesler and Bloemraad, 2010). Thus, ethnic diversity has been found sometimes to be positively associated with lower-quality institutions and inefficient governments (Mauro, 1995; La Porta et al., 1999; Alesina et al., 2003).

Political Implications: International migration may also have political implications in the host countries. Immigration can affect the political scene of the host country through the political mobilization of the immigrant population, or through the political reaction of native people to immigrants. Previous research has revealed that individuals in ethnically heterogeneous communities show lower trust in local government, local leaders and media, as well as less confidence in their own political influence. As a result, they participate less in voting (Putnam, 2007). However, they are found to have more interest and knowledge about politics

and to participate more actively in protests and social reform groups. Nevertheless, some scholars argue that the direction and strength of the relationship between immigration-generated diversity and collective endeavours is not a given but is conditioned by the institutional arrangements and the policies of each society (Kesler and Bloemraad, 2010).

On the part of immigrant groups, immigration can influence the political conditions in the host country through immigrants' imported ideology and political engagement. The ideological predispositions of immigrants in the country of origin are highly associated with the ideology they assert in the host country, in terms of both intensity and directionality (Wals, 2013). In addition, naturalization fosters immigrants' political integration (Hainmueller et al., 2015). By becoming citizens, immigrants gain voting rights and thus they are eligible to participate in all types of elections. However, the political engagement of the immigrant population is not exclusively restricted to electoral voting but enables them to achieve executive political positions and high levels of influence (Vermeulen et al., 2014). When it comes to political participation rates, immigrants seem to behave differently from native-born citizens. On one hand, an immigrant might be less likely to vote or to become politically engaged due to lack of critical resources such as education, income or social networks (Jones-Correa, 2001). On the other hand, past research has indicated that some minorities have a higher propensity to vote and participate in groups than natives, in order to preserve their identity and promote their political and civil rights (Alesina et al., 2000). Variation in political participation, however, is noticed not only between immigrants and natives but also among different immigrant groups, both in respect of the country of origin and time spent in the new host country (De Rooij, 2012).

It is also true that the host country's political life might be affected by the political mobilization of the native population against immigrants. The economic and social impacts of immigration on the host countries play an important role in determination of natives' attitudes

toward immigrants (Mayda, 2006; Dustmann and Preston, 2007; Facchini and Mayda, 2009), which in turn can affect their political preferences and voting behaviour. Thus, apart from responding to the growing concentration of immigrants by 'voting with their feet' and relocating, as previously suggested, natives may tend to support organized political movements against immigration. In addition, natives' attitudes toward immigration can be also indirectly shaped or manipulated by politics (Norris, 2005). Populist radical right parties have been defined in the literature by their anti-immigrant framing of contemporary political issues, with immigrants often the scapegoats for problems such as crime, access or quality concerns regarding welfare state provisions, high unemployment or other economic malaise, as well as domestic security threats, including terrorism (Williams, 2006). Therefore, public opinion on immigration might be just as instrumentally shaped by the anti-immigrant rhetoric of some political actors. As the existing empirical literature suggests, the increasing immigration to European countries has a significant effect on electoral support of political parties with strong anti-immigrant views and agendas (Lubbers et al., 2002; Otto and Steinhardt, 2014; Halla et al. 2017; Harmon, 2017).

1.3 Overview of the Studies in the Dissertation

This doctoral dissertation consists of three empirical studies (Chapters 2-4), each of which examines a specific aspect of the economic, social and political impact of international migration in Europe. A brief introduction and discussion of these three chapters follows.

1.3.1 Chapter 2: Cultural diversity and economic performance: The moderating role of trust

In Chapter 2, we examine empirically how cultural diversity affects the economic performance of European regions. The findings of past research on the impact of cultural diversity on a society's economic performance have been mixed. On the one hand, some scholars argue that the existence of culturally heterogeneous groups is favourable for societies. Beneficial skill complementarities, the generation of new ideas and knowledge spillovers derived from cultural diversity can lead to higher levels of innovation, positively affect creativity and increase macroeconomic productivity (Ottaviano and Peri, 2006; Niebuhr, 2010; Sparber, 2010). On the other hand, previous research has shown that cultural diversity may also generate potential costs. Communication difficulties and cooperation problems, as well as conflicts of preferences among cultural groups, can prove damaging to economic performance (Alesina and La Ferrara, 2005; Easterly and Levine, 1997; Ratna et al., 2009). Other potentially negative characteristics of culturally heterogeneous societies include the sub-provision of public goods, lower spending on the common good, inefficient government and lower quality institutions (Alesina et al., 1999; La Porta et al., 1999; Montalvo and Reynal-Querol, 2005). Therefore, the main question would appear to concern what it is that determines whether the economic outcomes of cultural diversity are positive or negative.

In this chapter, we attempt to address this issue by investigating the role of generalized social trust as a moderator in the relationship between cultural diversity and economic performance. According to established theory, generalized trust is one of the main components of social capital that facilitates coordination among people (Coleman, 1990; Putnam, 1993; Fukuyama, 1995). Thus, we propose that the effects of cultural diversity on regional economic performance will be positively moderated by the level of generalized social trust. We also examine whether the impact of cultural diversity on regional economic

performance is affected by the level of trust individuals have in their public institutions. Trust in institutions can moderate the aforementioned relationship by raising the likelihood of trust in others, facilitating civic and political engagement and reinforcing people's compliance with rules (Levi and Stoker, 2000; Levi, 1998; Greif, 1993; Tyler, 1998). Therefore, we argue that trust in institutions might be a prerequisite for expanding interaction and enhancing cooperation among strangers, or among individuals who lack information.

Our hypotheses are tested on a dataset of 74 regions from 12 European countries for the period between 2004 and 2012, with two-year gaps. The economic performance of each region is measured by the regional Gross Domestic Product (GDP) per capita. The data were supplied by the European Regional Database of Cambridge Econometrics. Our cultural diversity variable consists of a component that measures the share of foreigners over total population and a component which captures the diversity among foreigners. We used data from the Labour Force Survey (LFS) elaborated by Eurostat to calculate this variable. To measure the level of generalized social trust and trust in institutions in regions of Europe, we used data provided by the European Social Survey (ESS). Finally, information about the control variables was collected by the European Regional Database of Cambridge Econometrics and Regional Statistics Database of Eurostat.

The results of our empirical analysis indicate that it is not the size of a foreign population (share of foreigners) that is important, but the wider variety of that population (foreigners diversity), which is positively associated with regional income. We also find that in regions with a low level of generalized social trust, the benefits of foreigners' diversity are absent; while in regions with a high level of generalized social trust, the benefits of foreigners' diversity are significant. Our findings for individuals' trust in institutions are similar.

1.3.2 Chapter 3: Immigrants' Origin and Skill level as Factors in Attitudes toward Immigrants in Europe

The purpose of this chapter is to investigate how national attitudes toward immigrants are affected by the characteristics of the immigrants living within the same geographic region. Much existing research on Western Europe and beyond has tended to investigate the phenomenon of immigration by linking attitudes toward immigrants to the individual characteristics of those holding particular viewpoints, whether positive or negative (Mayda, 2006; O'Rourke and Sinnott, 2006; Facchini and Mayda, 2008; Pardos-Prado, 2011). However, this chapter examines the impact of regional factors on European attitudes towards immigrants by placing weight on the traits of the immigrants themselves. More specifically, we evaluate the extent to which origin (EU/Non-EU) and skill level (low/highly-educated) of immigrants living in a given region drive public sentiment to be more or less anti-immigrant.

To date, a few studies at European level have emerged that consider the characteristics of the immigrant population as determinative. Most of these studies show that the origin of immigrants plays an important role in explaining anti-immigrant attitudes, with higher ethnic distance between natives and immigrants generating more negative attitudes (Dustmann and Preston, 2007; Green *et al*., 2010; Markaki and Longhi, 2013; Bridges and Mateut, 2014). These findings seem to be driven more by cultural concerns and less by economic considerations. However, there are mixed results about the impact of immigrants' skill level on the attitude of natives toward them (Schneider, 2008; Hainmueller and Hiscox, 2007; Facchini and Mayda, 2012; O'Connell, 2011). Based on the existing literature, we expect that anti-immigrant attitudes increase when economic conditions decline, as suggested by economic competition theory. Second, we argue that cultural difference correlates negatively with attitudes toward immigrants and attitudes become more negative as cultural difference increases, which is consistent with conflict and identity theory. Third, we suppose that increasing contact with immigrants produces more positive attitudes toward them, as predicted by contact theory.

Our analysis utilizes data from the European Labour Force Survey (EU-LFS) and the European Social Survey (ESS) over the period 2004-2012, from 78 regions of 16 European countries. The dependent variable, anti-immigrant attitudes, is measured using the respondents' answers to three different questions about immigration in the ESS. We use explanatory variables at two different levels, the individual and the regional. While the focus is on regional level determinants, we use individual level data in order to control for the more idiosyncratic factors of individual anti-immigrant attitudes. Our regional indicators are computed from the EU-LFS and for our individual-level predictors we use survey data from the ESS. Finally, data on regional control variables are provided by the Regional Database of Cambridge Econometrics and the Regional Statistics Database of Eurostat.

The empirical results indicate that the proportion of foreigners in a given region does not appear to be a significant factor in shaping attitudes toward immigration. However, when we distinguish between different groups of immigrants, we find that immigrants' origin seems to play a key role. In addition, although we do not find any significant direct effect of immigrants' skill level, as measured by level of educational attainment, in shaping attitudes toward them, our empirical results reveal some evidence that immigrants' skill level might interact with the size of immigrant population to influence the portrayal of immigrants in the minds of natives. In particular, we find that the positive effect of the total share of foreigners on natives' attitudes toward immigrants, with respect to the country's economy and culture, is stronger in regions where the percentage of low-educated immigrants is higher.

1.3.3 Chapter 4: Immigration and electoral support for the radical right: Evidence from Dutch municipalities

The last chapter of the dissertation empirically examines the impact of international immigration on political outcomes in the Netherlands. More precisely, in this chapter we

investigate how the stock of immigrants and the immigrant inflows to Dutch municipalities affect electoral support for the radical right parties in the country.

The existing literature distinguishes between economic and non-economic channels through which are determined both the attitude of individuals towards immigrants and thus demand for the radical right. As described in the previous chapter, public opinion on immigration seems to be shaped by both labour market conditions and welfare system characteristics (Scheve and Slaughter, 2001; Hanson et al. 2007; Dustmann and Preston, 2007; Facchini and Mayda, 2009), and by social or cultural factors within the local community (Mayda, 2006; O'Rourke and Sinnott, 2006). Additionally, natives' attitudes toward immigrants, which in turn determine their political preferences and voting behaviour, can be also indirectly shaped or manipulated by politics (Norris, 2005). Radical right parties often target immigrants as the cause of several problems such as high unemployment, increasing crime rates or other security threats such as terrorism (Williams, 2006). Therefore, public attitudes on immigration might be instrumentally shaped by the anti-immigrant rhetoric of some political actors. Consequently, supply-side factors, such as the skill of political actors in associating immigration with many of the problems of society, can determine the extent to which public demand for the radical right is developed.

Previous research has shown that both stock and inflows of immigrants (in terms of country of birth or nationality) are positively associated with electoral support for radical right parties (Otto and Steinhardt, 2014; Becker and Fetzer, 2016; Halla *et al*., 2017; Harmon, 2017). In addition, much of the prior empirical research has found that the type of immigrants (e.g. Western/Non-Western) significantly affects voting in favour of the radical right (Gerdes and Wadensjö, 2010; Mendez and Cutillas, 2014; Brunner and Kuhn, 2018). Our work contributes to the growing literature on immigration and political preferences by providing empirical evidence from the Netherlands. Additionally, in this chapter we differentiate

ourselves from previous empirical research by exploring and comparing the short-term effect of immigration (immigrant inflows) and its longer-term impact (immigrant stock) on the vote share of the radical right. Finally, to the best of our knowledge, this work is the only empirical study of the related literature that distinguishes first- and second-generation immigrants.

We use a panel dataset that covers 338 Dutch municipalities for which we observe the outcomes of national elections held in the Netherlands in 2003, 2006, 2010 and 2012. Our data are drawn from two different sources. First, we use information on election results in Dutch municipalities from the Electoral Council (Kiesraad). Our second source of data is the Central Bureau of Statistics (CBS) of the Netherlands from where we collected demographic data and the other socio-economic information use to construct our control variables. The results of this chapter indicate that, although an increase in the share of foreign-born immigrants within a municipality does not increase the vote share of the radical right, increases in immigrant inflows have a positive and statistically significant effect on voting in support of radical right parties. This finding implies that is not so much the longer-term effect of immigration but its short-term impact that is important for explaining anti-immigrant voting. Our empirical analysis leads to several other findings including that the share of second-generation immigrants negatively affects anti-immigrant votes, while similarly to previous studies, cultural distance between natives and immigrants is a significant determinant of the electoral support for the radical right.

Chapter 2
Cultural diversity and economic performance: The moderating role of trust

Abstract

Cultural diversity in the European area has been increasing in recent years as an inevitable consequence of international migration. The purpose of this study is to empirically investigate the relationship between cultural diversity and economic performance in 74 regions of 12 European countries. The results of previous studies on the effect of culturally heterogeneous groups on a society's economic performance have been mixed. In an effort to help explain these contradictory findings in past research, we introduce the concept of generalized social trust as a moderator in this relationship. In addition, we examine the moderating role of individuals' trust in institutions. Our empirical results indicate that it is not the size of a foreign population (share of foreigners) that is important, but the wider variety of that population (foreigners diversity), which is positively associated with regional income. We also find that in regions with a low level of generalized social trust, the benefits of foreigners' diversity are absent; while in regions with a high level of generalized social trust, the benefits of foreigners' diversity are significant. Our findings for individuals' trust in institutions are similar.

2.1 Introduction

Almost one fourth of all international migrants worldwide live in Europe.[1] According to the *Migration and Migrant Population Statistics* published by Eurostat in 2017, Europe hosts more than 60 million migrants from around the world. This number represents 11.5 per cent of the total population of Europe, with nearly two thirds of international migrants coming from regions outside of Europe. During the decade 2007-2016, Europe added around 13 million migrants to its population, in other words 1.3 million on average per annum. In addition, the number of asylum applications in Europe has increased considerably over the last few years, reaching a high of about 1.3 million first-time asylum applicants in 2015.

As the above statistics clearly indicate, the phenomenon of immigration to European countries is an ongoing reality. Since cultural diversity in the area has been increasing in recent years as an inevitable result, examining its consequences is a subject of vital interest from both a sociological and an economic perspective. The findings of the existing literature on the effect of cultural diversity on a society's economic performance have been mixed, however. On the one hand, some scholars argue that the existence of culturally heterogeneous groups is favourable for societies. Beneficial skill complementarities, the generation of new ideas and knowledge spillovers derived from cultural diversity can lead to higher levels of innovation, positively affect creativity and increase macroeconomic productivity (Ottaviano and Peri, 2006; Niebuhr, 2010; Sparber, 2010).

On the other hand, previous research has shown that cultural diversity may also generate potential costs. Communication difficulties and cooperation problems, as well as conflicts of preferences among cultural groups, can prove damaging to economic performance (Alesina and La Ferrara, 2005; Easterly and Levine, 1997; Ratna et al., 2009). Other potential negative characteristics of culturally heterogeneous societies include the sub-provision of

[1] All statistics on migration in Europe concerns the current composition of the European Union (28 member states) including also Norway and Switzerland.

public goods, lower spending on the common good, inefficient government and lower quality institutions (Alesina et al., 1999; La Porta et al., 1999; Montalvo and Reynal-Querol, 2005).

The main question, therefore, would appear to concern what determines whether the economic outcomes of cultural diversity are positive or negative. In an attempt to contribute to an answer for this 'riddle', this study empirically investigates the role of generalized social trust as a moderator in the relationship between cultural diversity and economic performance. According to established theory, generalized trust is one of the main components of social capital that facilitates coordination among people (Coleman, 1990; Putnam, 1993; Fukuyama, 1995). We also examine whether the impact of cultural diversity on regional economic performance is affected by the level of trust individuals have in their public institutions. Trust in institutions can moderate the aforementioned relationship by raising the likelihood of trust in others, facilitating civic and political engagement and reinforcing people's compliance with rules (Levi and Stoker, 2000; Levi, 1998; Greif, 1993; Tyler, 1998).

The rest of the paper is organized as follows: Section 2 presents a literature review and provides the theoretical background from which our hypotheses are derived. Section 3 explains the research model specification and describes our dataset. Section 4 presents the empirical results of our study. Finally, Section 5 provides a discussion and conclusion.

2.2 Theoretical background and hypotheses

Arriving at a clear definition of culture has been a controversial academic issue for decades, and the term 'cultural diversity' can accordingly be interpreted many different ways. The definition of cultural diversity we use in this paper refers to the existence of various groups of people in a region as defined by diverse ethnic or racial backgrounds, religions, customs and traditions or languages. Due to the broad definitions of cultural diversity that exist, different operationalizations have been used in the literature to capture the same construct. In the next section, we explain how we measured cultural diversity based on previous empirical research.

Finally, although cultural diversity is a major issue for both society and the economy, the existing literature on its overall impact is inconclusive. Cultural diversity has been shown to be both beneficial and harmful to economic life through its various mechanisms.

2.2.1 The benefits of cultural diversity

We will start by looking at the benefits. First, from the perspective of micro-level mechanisms, cultural diversity can boost productivity through the skill complementarities that arise between individuals. Lazear (1999) argues that a multicultural group leads to greater productivity at the firm level by widening the pool of skills and providing strong complementarities among the group's members. Moreover, according to the literature, immigrants, especially the highly educated, can play an important role in promoting not only skill diversity and complementarities, but also task specialization (Peri and Sparber, 2009; Ottaviano and Peri, 2012). In addition Prat (2002), applying team theory, suggests that when the agents' actions are substitutes it is optimal for a team to be heterogeneous.

Second, greater diversity within a group can increase people's ability to address complicated problems and devise better solutions (Page, 2008). People from different cultural groups have been exposed to different experiences; they have developed different perspectives and are thus more likely to follow different heuristics when dealing with a problem. Hong and Page (2001) found that a group of diverse individuals can provide optimal solutions to difficult problems by presenting different perspectives and using alternative ways to solve them.

Third, interaction among people of diverse backgrounds may not only promote the creation of new ideas, but also generate knowledge spillovers (Glaeser et al., 1992; Audretsch and Keilbach, 2007). Berliant and Fujita (2008) developed a microeconomic model of knowledge production through the interaction of individuals in which population heterogeneity was an essential factor. Moreover, Williams and O'Reilly (1998) conducted a

review of 40 years of research on demography and diversity in organizations based on information and decision theory and revealed that ethnic diversity can increase creativity and enhance decision-making.

A considerable number of empirical studies have revealed a positive relationship between cultural diversity and economic performance at both the micro- and macroeconomic levels. Using firm-level data from the US, Ghosh et al. (2014) showed that skilled foreign-born workers have a positive impact on firms' labour productivity and profits. Similar findings were reported by Kemeny and Cooke (2017a), who indicate that immigrant diversity in US workplaces has a positive impact on worker productivity. Furthermore, using micro-level data on French firms, Mitaritonna et al. (2017) found that an increase in firms' immigrant employment leads to an increase in their productivity. Regarding the effect of cultural diversity on firm innovation, Parrotta et al. (2014b) have stated that, based on data from Denmark, worker diversity in terms of cultural background favours a firm's patenting activity.

At a macro-level, Peri (2012) showed that foreign workers are positively associated with total factor productivity in US states. Moreover, in their empirical analysis of metropolitan areas in the US, Ottaviano and Peri (2006) found that a multicultural urban environment increases the productivity of US-born workers. Using data from US cities, Kemeny and Cooke (2017a) suggest that immigrant diversity generates significant positive productivity spillovers; while Sparber (2010) argues that racial diversity increases the macroeconomic productivity of US cities, as well. Bellini et al. (2013) confirm the positive effect of cultural diversity on productivity, providing evidence from European regions. Similarly, the results of Suedekum et al. (2014) indicate that cultural diversity raises local productivity in the German labour market.

With regard to the impact of diversity on innovation, Niebuhr (2010) shows that the existence of a culturally diverse workforce increases R&D activity in German regions. Meanwhile, employing data on 170 European regions, Ozgen et al. (2011) suggest that, beyond a certain threshold, immigrant diversity has a positive impact on patent applications. In addition, previous research has revealed that the existence of culturally heterogeneous groups in a society seems to enhance entrepreneurship. Using data from German regions, Audretsch et al. (2010) showed a positive relationship between cultural diversity and technological start-ups. Moreover, Marino et al. (2012) found that ethnic diversity facilitated entrepreneurship in the financial and business services industry in Denmark.

Beyond that, several studies have analysed the role of immigrants in enhancing trade and foreign direct investment (FDI) by reducing bilateral transaction costs. More specifically, the empirical findings from the literature suggest that immigrants increase bilateral trade flows and FDI by facilitating communication and information exchanges among firms or by lowering set-up costs in the destination country (Gould, 1994; Rauch and Trindade, 2002; Lewer and Van den Berg, 2009; Docquier and Lodigiani, 2010; Kugler and Rapoport, 2011). In a recent empirical study, Ottaviano et al. (2015) found that immigrants had a positive impact on country-specific exports from the UK. Meanwhile, in their meta-analysis of this literature, Genc et al. (2011) argue that an increase in the number of immigrants in a country by 10 per cent increases the volume of trade by about 1-2 per cent.

Finally, using data from 195 countries, Alesina et al. (2016a) found that both the share of foreign-born population and the degree of diversity among foreigners were positively associated with a country's GDP per capita. Nevertheless, focusing on genetic diversity (measured as the probability that two randomly selected individuals from a population are genetically different), Ashraf and Galor (2013a, b) found an inverse u-shaped relationship with per capita income. Two additional empirical papers have analyzed regional data from

Europe, in an approach similar to that of the present study, to explore the link between cultural diversity and economic performance. First, Brunow and Brenzel (2011) found that a culturally diverse population had a positive impact on regional income, while Dohse and Gold (2014) also concluded that European regions with higher levels of cultural diversity experienced greater economic performance.

2.2.2 The costs of cultural diversity

At the same time, cultural heterogeneity can generate potential costs for the economy. When a group of people shares diverse cultural characteristics, individuals are likely to face communication problems and may find it difficult to cooperate effectively because they hold different values and perspectives (Lazear, 1999; Richard et al., 2002). Moreover, these communication and cooperation difficulties derived from linguistic and other intercultural barriers may also hinder the transfer and sharing of knowledge between people. In addition, according to the literature, greater diversity can result in lower trust and weaker social ties among individuals (Alesina and La Ferrara, 2002; Putnam, 2007). Therefore, cultural diversity can decrease the level of integration and social cohesion of a group, which in turn negatively affects individual performance (O'Reilly et al., 1989; Milliken and Martins, 1996).

In a review of research on diversity in organizations, Williams and O'Reilly (1998) argue that according to similarity/attraction and social categorization theories, ethnic and racial diversity exerts a negative impact on group processes by creating more communication problems and increasing conflicts. Furthermore, in an empirical study on firms' competitive moves, Hambrick et al. (1996) found that heterogeneous top management teams take slower action than homogenous ones and may not respond to competitors' moves properly. Other recent empirical studies at a firm level also revealed that cultural diversity may have a negative or non-effect on firm performance. Using a dataset from Danish firms, Parrotta et al. (2014a) showed that workforce diversity in terms of ethnicity has a negative effect on firm

productivity, while Trax et al. (2015) found that a higher level of foreign workers did not enhance plant-level productivity in Germany.

At a macroeconomic level, the empirical results of past research indicate that cultural heterogeneity can prove damaging to the economic performance of societies (Alesina and La Ferrara, 2005; Easterly and Levine, 1997). Providing data from 48 states in the US, Ratna et al. (2009) showed that racial diversity decreased economic growth, while Montalvo and Reynal-Querol (2005) used data from 138 countries to demonstrate that ethnic polarization negatively affects economic development. In addition, cultural diversity can generate a conflict of preferences among cultural groups, which in turn can lead to less spending on the common good. Alesina et al. (1999) showed that ethnically heterogeneous societies spend less on productive public goods such as education and infrastructure (see also Alesina et al. 2016b). Moreover, La Porta et al. (1999) confirm that ethnolinguistically diverse countries are correlated with inferior public goods provision, while Esteban et al. (2012) found that ethnic polarization and fractionalization are positively associated with conflict over public and private goods, respectively. In extreme cases cultural diversity can even trigger violent conflicts (e.g., civil wars) that have profound negative consequences for societies (Easterly and Levine, 1997; Montalvo and Reynal-Querol, 2005).

Finally, cultural heterogeneity within a society is sometimes offered as an explanation for inefficient government and lower-quality institutions. Mauro (1995) suggests that ethnolinguistic fractionalization is negatively correlated with institutional efficiency. La Porta et al. (1999) and Alesina et al. (2003) reported similar findings, arguing that cultural diversity can cause poor government performance. When the specific role played by institutions was taken into account in empirical studies, however, it noticeably influenced the results. For instance, according to Collier (2000), ethnic diversity is extremely detrimental to economic growth in cases of dictatorship but not in democracies. Likewise, previous research has found

that cultural heterogeneity does not damage economic growth, or only to a limited extent, in cases where good institutions exist or the quality of government is controlled for (Alesina et al., 2003; Easterly, 2001).

Consequently, the first issue of this study will be to examine whether the economic outcomes of cultural diversity in European regions are positive or negative. Additionally, in an attempt to partly reconcile the contradictory findings of the literature, we will explore whether the effect of cultural diversity on regional economic performance is determined by the levels of generalized social trust or trust individuals have in institutions.

2.2.3 The role of generalized trust

Generalized social trust can refer to trust in complete strangers or in fellow citizens outside one's social network. The level of trust that people show in other people with whom they are not familiar can moderate the relationship between cultural diversity and economic performance in a society. Distinguished scholars have emphasized the importance of trust in society, designating it one of the main components of social capital that facilitates coordinated action (Coleman, 1990; Putnam, 1993; Fukuyama, 1995). Indeed, La Porta et al. (1997) have empirically supported this assertion by finding that trust promotes cooperative behaviour in large organizations.

At the societal level, generalized trust may encourage cooperation among different actors by reducing the costs of economic interactions. According to Levi (1998), the higher the level of trust between potential partners, the lower the need for contracts and written commitments and the lower the cost of investment in information gathering and monitoring. In addition, social trust may spur people on to become involved in their local communities. The presence of interpersonal trust can prompt civic engagement on the part of individuals and their participation in social activities (Brehm and Rahn, 1997; Uslaner, 2002). Therefore, generalized social trust can influence life in heterogeneous societies by facilitating the

interaction between people coming from culturally different backgrounds. Building on the theory of groups, we argue that generalized trust might be a necessary precondition to reaping the benefits of cultural diversity. If people in a society trust one another, then the skill complementarities and knowledge spillovers between cultural groups can materialize more easily, resulting in higher levels of creativity and productivity (Lazear, 1999; Glaesar et al., 1992; Feldman and Audretsch, 1999). In addition, when people have high levels of generalized social trust, it can alleviate the communication and cooperation problems deriving from cultural diversity, reducing the negative effects on economic performance. Consequently, we propose that the effects of cultural diversity on regional economic performance will be positively moderated by the level of generalized social trust,[2] arriving at the following hypothesis:

Hypothesis 1: Generalized social trust positively moderates the relationship between cultural diversity and regional economic performance. More specifically, the benefits of cultural diversity will become apparent in regions where generalized social trust is high.

2.2.4 The role of institutional trust

Another type of trust that seems to be vitally important and may affect the relationship between cultural diversity and economic performance is institutional trust. The term 'institutional trust' refers to the trust people have in political and social institutions, such as their country's parliament, the legal system or the police. On one hand, individuals' trust in institutions is related to generalized social trust, in the sense that both involve putting trust in strangers. Previous research reveals that generalized social trust and trust in political institutions are positively correlated at the aggregate level of societies (Newton and Norris, 2000; Rothstein and Stolle, 2008; Newton and Zmerli, 2011). Indeed, our correlation matrix

[2] Additionally, we examined the mediating role of generalized trust in this relationship. However, our results did not show any significant correlation between cultural diversity and the level of trust in a region.

reveals a strong positive correlation of 0.82 between generalized social trust and institutional trust.

On the other hand, trust in institutions differs from generalized social trust in that the latter is associated with individual traits, social and demographic characteristics and first-hand experiences, while the former is more a reflection of the institutions' trustworthiness. The level of institutional trust in a society is therefore less determined by personal characteristics at the individual level than by the quality and performance of the institutions themselves (Newton, 1999; Newton and Norris, 2000). Consequently, although generalized social trust and institutional trust seem to be highly correlated, their impact on the relationship we are examining might be different.

The question, then, is how institutional trust might moderate the effect of cultural diversity on economic performance. Levi (1998) argues that in many cases interpersonal trust is based on individuals' trust in institutions that protect the trustee. Thus, trustworthy institutions can encourage social trust, which in turn leads to more cooperative societies and productive economies (Fukuyama, 1995; Levi, 1998; Levi and Stocker, 2000). In addition, similarly to social trust, trust in institutions can promote individuals' civic and political engagement. Some scholars claim that when people show trust in political institutions, they are more likely to become involved in voting and other political activities (Levi and Stocker, 2000). Finally, trust in institutions that enforce the law may have significant implications for citizen compliance with regulations. Institutional trust can not only decrease the incentives for corruption, but also enhance cooperation and people's willingness to obey the rules that foster economic growth (Greif, 1993; Levi and Sherman, 1997; Tyler, 1998).

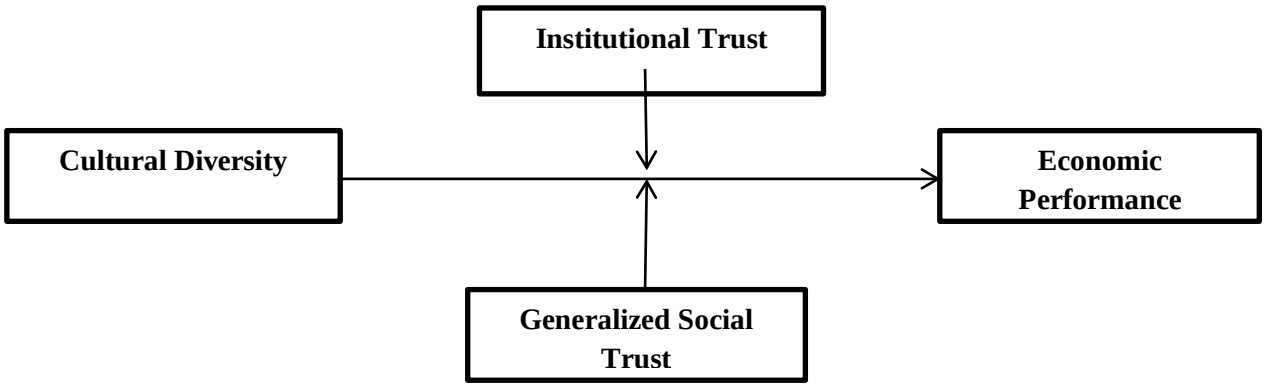
Therefore, we argue that trust in institutions might be a prerequisite for expanding interaction and enhancing cooperation among strangers or individuals who lack much information by raising the likelihood of trust in others, facilitating civic and political

engagement and reinforcing people's compliance with the rules. Consequently, we propose that the effects of cultural diversity on regional economic performance will be positively moderated by the level of trust that individuals show in institutions. Thus, we hypothesize that:

Hypothesis 2: Institutional trust will positively moderate the relationship between cultural diversity and regional economic performance. More specifically, the benefits of cultural diversity will become apparent in regions where institutional trust is high.

The research model of our study is schematically represented in the following figure.

Figure 2.1 Research Model



Note: The figure presents the impact of cultural diversity on regional economic performance. The relationship between cultural diversity and economic performance is moderated by both the level of generalized social trust and individuals' trust in institutions.

2.3 Methodology

2.3.1 Model specification

The purpose of this study is to empirically investigate the relationship between cultural diversity and economic performance in European regions, using both generalized social trust

and individuals' trust in institutions as moderators in this relationship. Thus, the following linear[3] regression model is estimated:

$$\boldsymbol{Y_{it} = \alpha + \beta_1 DIV_{it} + \beta_2 TR_{it} + \beta_3 DIV_{it} \times TR_{it} + \sum_{j=1}^{M} \gamma_j X_{jit} + \mu_t + \mu_r + \varepsilon_{it},} \quad \textbf{(1)}$$

where Y_{it} denotes regional economic performance, DIV_{it} is an indicator of cultural diversity and TR_{it} measures the level of social and institutional trust, respectively, in region *i* at time *t*. Moreover, X_{jit} is a set of control variables at the regional level, and ε_{it} is the error term of Equation (1), which captures all other determinants of regional economic performance. In addition, this model accounts for time-specific effects that affected all regions equally during the years of analysis (e.g., the global economic crisis) by estimating time fixed effects, μ_t. Finally, we also include region fixed effects, μ_r, to control for unobserved time-invariant heterogeneity at the regional level, such as formal institutional structures.

2.3.2 Variables and data description

The level of analysis used in this study is the NUTS-1 regional level.[4] The advantage of NUTS-1 over a lower regional level is that it controls for strong spatial interdependencies that exist between regions. We do, however, use information at the NUTS-2 regional level in cases when the NUTS-1 level corresponds to an entire country, as with Finland, Norway and Portugal, or when the NUTS-1 level is geographically too large to be of use, as in the case of Sweden. Taking into consideration the availability of data on the dependent and main independent variables, our dataset eventually covered the period from 2004 to 2012, with two-year gaps. We exploited data for this time span on 74 regions in 12 European countries.

[3] An alternative specification that included a quadratic term for diversity was used to check the non-linear effect of cultural diversity on regional performance. However, the effect turned out to be statistically insignificant, and it was hence excluded from the model.

[4] Nomenclature of Units for Territorial Statistics (NUTS) of the EU classifies countries into regions according to demographic and socioeconomic characteristics. NUTS is divided into three hierarchical levels, with the NUTS-3 level representing a more detailed classification of regions and NUTS-1 a broader one.

Table 2.1 provides information about the countries and regions observed in this study. Here follows an analytical description of each variable included in our model.

Table 2.1 Regions Observed

Country (ID)	Number of Regions	NUTS-Level
Belgium (BE)	3	NUTS-1
Germany (DE)	16	NUTS-1
Denmark (DK)	1	NUTS-1
Finland (FI)	3	NUTS-2
France (FR)	8	NUTS-1
Hungary (HU)	3	NUTS-1
Netherlands (NL)	1	NUTS-0
Norway (NO)	7	NUTS-2
Portugal (PT)	5	NUTS-2
Spain (ES)	7	NUTS-1
Sweden (SE)	8	NUTS-2
United Kingdom (UK)	12	NUTS-1

Notes: The NUTS-2 level is used in the cases of Finland, Norway and Portugal where the NUTS-1 level corresponds to the whole country and data at the NUTS-2 level are available. The NUTS-2 level is also used in the case of Sweden where the NUTS-1 level is geographically too large to be of use. For the Netherlands data are available only at the country level (NUTS-0). The two autonomous regions of Portugal, the Azores and Madeira, are excluded.

- *Regional economic performance*

The current economic performance of each region is measured by the regional Gross Domestic Product (GDP) per capita. GDP per capita is one of the most significant indicators of economic strength and prosperity in any region. The data were supplied by the European Regional Database of Cambridge Econometrics. This dataset updates and adjusts regional economic accounts data provided by Eurostat and various other sources. Regional GDP per capita data are measured in purchasing power parities and expressed as a per cent of the EU-25 average.

- *Cultural diversity*

We used data from the Labour Force Survey (LFS) elaborated by Eurostat to measure the cultural diversity of European regions at the NUTS-1 level.[5] The LFS is a large household survey about labour market features conducted for all the member states of the European Union (EU). It has been conducted since 1983, with the sample size increasing as countries acceded to the EU. The LFS data provide quarterly information about labour participation, as well as other individual and demographic characteristics. Moreover, the survey includes not only the active labour force, but all people age 15 and older residing in private households.

For most of the EU-28 regions, LFS provides information on the nationality and country of birth of each respondent from 2004 onwards. Following Dohse and Gold (2014), we created seven broad groups of origin,[6] first according to individuals' nationality and then according to their country of birth as an additional robustness analysis.[7] However, the demographic information received from the household survey does not represent the entire region in every case. The LFS thus provides an individual weighting factor for each interviewee to make the survey representative of the total regional population. Taking into account the weighting factors, then, cultural diversity was calculated as described below.

The most frequently used index in the literature to measure cultural diversity is the index of fractionalization. The fractionalization variable is defined as one minus the Herfindahl index of group shares, and therefore, cultural diversity, DIV, is calculated as:

$$DIV_i = 1 - \sum_{j=1}^{N} {\pi_{ij}}^2,$$

[5] Other empirical studies that have used LFS data include Brunow and Brenzel (2011) and Dohse and Gold (2013, 2014).

[6] EU-28, Other Europe, Northern Africa and Middle East, Other Africa, Asia, Australia and Northern America, Latin America.

[7] Because LFS does not provide information about individuals' country of birth for the German regions, we estimate an alternative diversity specification based on country of birth as an additional robustness analysis.

where $\pi_{ij}$is the proportion of group j (j=1…N) over the total population. In our case, the number of groups is equal to eight, which is the sum of the group of natives and the seven broad groups of foreigners. The fractionalization index is interpreted as the probability that two randomly selected individuals in a region will belong to different cultural groups with respect to their nationality.

In addition, following Alesina et al. (2016a), we decompose our cultural diversity variable DIV into a component that measures the share of foreigners over total population ($fshare$) and a component which captures the diversity among foreigners ($fdiv$). Foreigners' diversity ($fdiv$) is computed using the fractionalization index again, but this time the calculation is restricted over the seven broad groups of foreigners mentioned above. Thus, the cultural diversity variable DIV can be expressed as:[8]

$$DIV = 2 * fshare * (1 - fshare) + (fshare)^2 * fdiv.$$

This decomposition allows us to distinguish between the size of the foreign population in each region, irrespective of the foreigners' cultural backgrounds, and the diversity arising from the variety and the relative size of foreign groups.

- *Generalized social trust*

To measure the level of generalized social trust in regions of Europe, we used data provided by the European Social Survey (ESS). The purpose of the survey is to assess the individual beliefs and attitudes, as well as the social behavioural patterns and demographic characteristics, of citizens all over Europe. The ESS is a cross-national survey that has been carried out every two years since 2002 in face-to-face interviews across European countries. A minimum number of 1500 interviews are conducted for each country, or 800 interviews in

[8] See Alesina et al. (2016a) for a more analytical explanation of the algebra behind this mathematical expression.

countries where the population is under 2 million, after discounting for design effects.[9] The survey sample consists of individuals age 15 years and older living in private households. However, each round of surveys does not always cover every country.

The question used in the ESS to measure the level of generalized social trust in the European regions we were interested in is: 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?' Answers are rated on a scale from 0 to 10, where 0 denotes that 'you can't be too careful' and 10 means that 'most people can be trusted'. The indicator of regional generalized trust used in our model is the weighted average of responses for each region. The phrasing of the survey question is general enough that it allows respondents to express their attitude towards people outside their immediate network (Knack and Keefer, 1997; Zak and Knack, 2001). The question is therefore a reasonable proxy for capturing the level of generalized social trust in European regions. However, as Knack and Keefer (1997) mention, individuals in low-trust societies may have more interpersonal transactions with familiar people, such as family and friends, than with strangers, compared to inhabitants of high-trust communities. According to the authors, if the interviewees interpret the question in such a way as to answer only about the people with whom they transact, then it will decrease variation in the measure of generalized social trust.

- *Institutional trust*

As we did for generalized social trust, we used data provided by the European Social Survey (ESS) to measure the regional trust in institutions. The variable of institutional trust is a composite indicator that is calculated as the average of three separate variables that measure the level of people's trust in a country's parliament, legal system and police force, respectively. More specifically, the questions used in the ESS for this are: 'How much do you

[9] More information about the sampling methods and weighting techniques of the survey can be found on the ESS's website, www.europeansocialsurvey.org.

personally trust your country's parliament/legal system/police force?' The variables range in value from 0 to 10, where 0 denotes that people do not trust their institutions at all, while 10 means that they have complete trust in them.

- *Control variables*

Apart from the main independent variables presented above, we also used a set of control variables at the regional level in our empirical analysis. More explicitly, following the prior literature (Ottaviano and Peri, 2006; Bellini et al., 2013; Dohse and Gold, 2014), we included the population density of a region as a demographic control variable. In addition, share of active population was used to capture the effect of employment structure. Moreover, to account for differences in human capital that may affect regional income, we included the share of highly educated population in each region. Finally, other employment structure and innovation variables – such as the number of total hours worked per employee, share of employment in the industrial sector and number of patent applications per million inhabitants were used as additional controls in a robustness analysis. Information about the control variables was collected by the European Regional Database of Cambridge Econometrics and Regional Statistics Database of Eurostat. Table 2.2 provides brief descriptions of the variables and summarizes the data sources.

Table 2.2 Descriptions of Variables

Variable	Definition	Source
Dependent variable		
GDP per capita	Regional Annual Gross Domestic Product (GDP) per capita in €2005 constant price in thousands	European Regional Database of Cambridge Econometrics
Explanatory variables		
Share of Foreigners	Share of foreign population over total population based on individuals' nationality	EU Labour Force Survey, Eurostat; Own calculations
Foreigners Diversity	Fractionalization index of foreigners' population group shares based on individuals' nationality	EU Labour Force Survey, Eurostat; Own calculations
Cultural Diversity	Fractionalization index of overall population group shares based on individuals' nationality	EU Labour Force Survey, Eurostat; Own calculations
Generalized Trust	Weighted average regional score on the survey question *'Most people can be trusted or you can't be too careful'* ranging from 0 to 10	European Social Survey
Institutional Trust	Average of three separate regional scores on the survey questions '*How much do you personally trust your country's parliament/legal system/police force?'* ranging from 0 to 10	European Social Survey; Own calculations
Demographic controls		
Population Density (log)	Number of people living per square kilometre in a region	European Regional Database of Cambridge Econometrics
Active Population	Share of both employed and unemployed, but not economically inactive, people as a percentage of the total regional population	European Regional Database of Cambridge Econometrics
Qualification controls		
Tertiary Education	Share of economically active population with tertiary education	Regional Statistics Database of Eurostat
Additional controls		
Hours Worked	Number of total hours worked per employee in all sectors in thousands	European Regional Database of Cambridge Econometrics
Industry Share	Share of employment per industry sector	European Regional Database of Cambridge Econometrics
Patent Applications	Number of patent applications per million inhabitants with 2-year lag	Regional Statistics Database of Eurostat

2.4 Results

2.4.1 Fixed effects estimates

Table 2.3 reports the descriptive statistics and correlations for all variables under study. Table 2.4 presents the fixed effects estimates of the effects of generalized trust, institutional trust and cultural diversity on regional GDP per capita, as well as the moderating effects of generalized and institutional trust. We estimated all models with robust standard errors clustered at the regional level to account for possible heteroscedasticity and serial correlation of error terms. Model 1, including control variables only, indicates that regional economic performance is negatively affected by population density. The estimated effects of the active population and the share of highly educated population on regional GDP per capita appear to be insignificant. In Models 2-5, the variables of generalized trust, institutional trust, cultural diversity and share of foreigners, along with foreigners' diversity, are respectively added into the initial model. The coefficient for generalized trust is insignificant, while institutional trust has a positive and statistically significant association with regional income. More specifically, a one standard deviation higher institutional trust translates into a 469.2 euro increase in annual GDP per capita. In Model 4 the variable of cultural diversity does not appear to be statistically significant, but when it is replaced in Model 5 by the share of foreigners and diversity among the foreign population, the latter seems to have a positive effect on regional performance. The coefficients suggest that a one standard deviation increase in foreigners' diversity causes regional GDP per capita to rise by 181.6 euros. When we estimate the effects of both types of trust jointly with cultural diversity in Models 6 and 7, as well as with share of foreigners and foreigners' diversity in Models 8 and 9, the size and significance of the estimated coefficients remain quite similar.

Table 2.3 Descriptive Statistics and Correlation Matrix

	Variable	Mean	SD	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	**GDP per capita**	29.80	12.05	5.66	77.57	1.00											
(2)	**Share of Foreigners**	0.06	0.05	0.00	0.30	0.45	1.00										
(3)	**Foreigners Diversity**	0.66	0.10	0.20	0.80	0.16	0.01	1.00									
(4)	**Cultural Diversity**	0.11	0.08	0.01	0.47	0.45	0.99	0.03	1.00								
(5)	**Generalized Trust**	5.18	0.92	2.82	6.95	0.59	-0.07	0.14	-0.07	1.00							
(6)	**Institutional Trust**	5.39	0.85	1.61	7.20	0.64	0.06	0.13	0.07	0.82	1.00						
(7)	**Population Density**	-2.02	1.55	-5.71	1.97	0.08	0.58	0.02	0.58	-0.43	-0.25	1.00					
(8)	**Active Population**	0.51	0.04	0.37	0.60	0.39	0.11	0.34	0.13	0.28	0.33	0.03	1.00				
(9)	**Tertiary Education**	28.56	7.39	9.00	52.70	0.66	0.38	0.11	0.38	0.54	0.51	0.13	0.27	1.00			
(10)	**Hours Worked**	1.58	0.18	0.95	2.01	-0.42	-0.11	-0.05	-0.13	-0.26	-0.50	0.04	-0.23	-0.21	1.00		
(11)	**Industry Share**	0.15	0.05	0.04	0.32	-0.35	-0.39	-0.22	-0.39	-0.04	-0.01	-0.23	-0.11	-0.46	0.05	1.00	
(12)	**Patent Applications**	125.53	112.90	0.60	590.06	0.38	0.23	0.12	0.25	0.28	0.48	0.14	0.29	0.31	-0.34	0.18	1.00

Table 2.4 Fixed Effects Estimates

Dependent Variable: GDP per capita	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**	**Model (8)**	**Model (9)**
Population Density	-21.392***	-21.392***	-21.217***	-21.744***	-21.236***	-21.745***	-21.452***	-21.238***	-20.850***
	(4.986)	(4.991)	(5.001)	(5.621)	(5.697)	(5.610)	(5.599)	(5.682)	(5.636)
Active Population	10.981	10.982	12.452	11.003	11.751	11.005	12.464	11.757	13.393
	(9.518)	(9.511)	(9.608)	(9.527)	(9.549)	(9.518)	(9.610)	(9.537)	(9.669)
Tertiary Education	0.023	0.023	0.020	0.025	0.033	0.025	0.021	0.033	0.031
	(0.044)	(0.044)	(0.042)	(0.045)	(0.046)	(0.045)	(0.042)	(0.046)	(0.043)
Generalized Trust		-0.001				-0.002		-0.007	
		(0.164)				(0.161)		(0.163)	
Institutional Trust			0.552***				0.551***		0.577***
			(0.156)				(0.156)		(0.155)
Cultural Diversity				0.932		0.934	0.623		
				(3.312)		(3.280)	(3.155)		
Share of Foreigners					2.223			2.232	1.804
					(6.075)			(5.992)	(5.863)
Foreigners Diversity					1.816**			1.816**	2.086**
					(0.843)			(0.843)	(0.860)
Constant	-20.902	-20.898	-24.122	-21.752	-22.524	-21.742	-24.685	-22.502	-25.704
	(12.239)	(12.532)	(12.441)	(13.528)	(13.746)	(13.803)	(13.547)	(14.004)	(13.747)
Number of Regions	74	74	74	74	74	74	74	74	74
Observations	370	370	370	370	370	370	370	370	370
R-squared	0.473	0.473	0.498	0.473	0.480	0.473	0.498	0.480	0.508

Robust standard errors, clustered at the regional level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All models include region and year fixed effects.

Table 2.5 summarizes the fixed effects estimates of our interaction effects. The first two models of the table test for the moderating impact of generalized and institutional trust, respectively, on the cultural diversity effects. However, the estimated coefficients for the interaction terms are found to be statistically insignificant. In Models 3 and 4, we examine the moderating role of generalized and institutional trust on the share of foreigners and foreigners' diversity effects. The inclusion of the interaction terms adds explanatory power to previous models. The results of Model 3 show that the interaction effect of generalized trust and share of foreigners seems to be insignificant. However, the interaction between generalized trust and foreigners' diversity is found to be positive and strongly statistically significant, at the 1 per cent level, suggesting therefore that our first hypothesis is partly confirmed.

More explicitly, our results indicate that at low levels of generalized social trust (one standard deviation below the mean), increasing foreigners' diversity from one standard deviation below the mean to one standard deviation above the mean does not seem to significantly affect income. Nevertheless, at high levels of generalized social trust (one standard deviation above the mean), increasing foreigners diversity from one standard deviation below the mean to one standard deviation above the mean is associated with an increase in annual income per capita of nearly 2.9 per cent, or in other words 842 euros.

Similar to this are our findings in Model 4 about trust in institutions, which suggest that our second hypothesis is also partly supported. In particular, we found that at low levels of institutional trust (one standard deviation below the mean), increasing foreigners' diversity from one standard deviation below the mean to one standard deviation above the mean does not have a significant impact on income. At high levels of institutional trust (one standard deviation above the mean), however, increasing foreigners diversity from one standard

deviation below the mean to one standard deviation above the mean increases annual income per capita by almost 2.7 per cent, or 805 euros.

Finally, in Model 5 both types of trust interactions are considered simultaneously in the same regression. Our results show that the effect size of the institutional trust and foreigners' diversity interaction drops substantially and loses its significance when the corresponding interaction term of generalized trust is also introduced into the model. This result indicates that the impact of institutional trust works through the mechanism of generalized trust, which confirms what we suggested in Section 2.4, where we argue that individuals' trust in institutions might foster social trust in others.

Figures 2.2 and 2.3 present the predictive margins with 95% confidence interval for foreigners' diversity between low and high generalized social trust and institutional trust, respectively. The graphs illustrate that the positive effect of foreigners' diversity on economic performance is stronger in regions with higher trust in other people and higher trust in institutions, while at the same time the first interaction effect appears to be slightly stronger.

Table 2.5 Interaction Effects Estimates

Dependent Variable: GDP per capita	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**
Population Density	-22.030***	-21.529***	-20.401***	-20.011***	19.676***
	(5.678)	(5.575)	(5.569)	(5.500)	(5.592)
Active Population	11.105	12.612	13.078	15.825*	15.973*
	(9.526)	(9.624)	(9.385)	(9.324)	(9.250)
Tertiary Education	0.024	0.019	0.028	0.021	0.028
	(0.045)	(0.044)	(0.043)	(0.043)	(0.041)
Generalized Trust	-0.100		-1.719***		-1.913***
	(0.255)		(0.607)		(0.936)
Institutional Trust		0.460**		-0.952**	0.347
		(0.230)		(0.374)	(0.675)
Cultural Diversity	-2.726	-3.160			
	(7.817)	(10.251)			
Share of Foreigners			-6.035	-5.665	-8.311
			(13.457)	(16.904)	(17.044)
Foreigners Diversity			-10.555***	-9.875***	-12.065***
			(3.892)	(3.448)	(3.967)
Cultural Diversity X Generalized Trust	0.773				
	(1.814)				
Cultural Diversity X Institutional Trust		0.737			
		(1.832)			
Share of Foreigners X Generalized Trust			1.730		0.417
			(3.150)		(3.565)
Foreigners Diversity X Generalized Trust			2.444***		2.368*
			(0.850)		(1.302)
Share of Foreigners X Institutional Trust				1.433	1.623
				(3.113)	(3.593)
Foreigners Diversity X Institutional Trust				2.253***	0.431
				(0.659)	(1.079)
Constant	-21.880	-24.401	-12.674	-16.876	-13.772
	(13.874)	(13.840)	(13.470)	(13.286)	(13.460)
Number of Regions	74	74	74	74	74
Observations	370	370	370	370	370
R-squared	0.473	0.498	0.496	0.522	0.534

Robust standard errors, clustered at the regional level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All models include region and year fixed effect

Figure 2.2 Margins Plot of Generalized Trust and Diversity among Foreigners

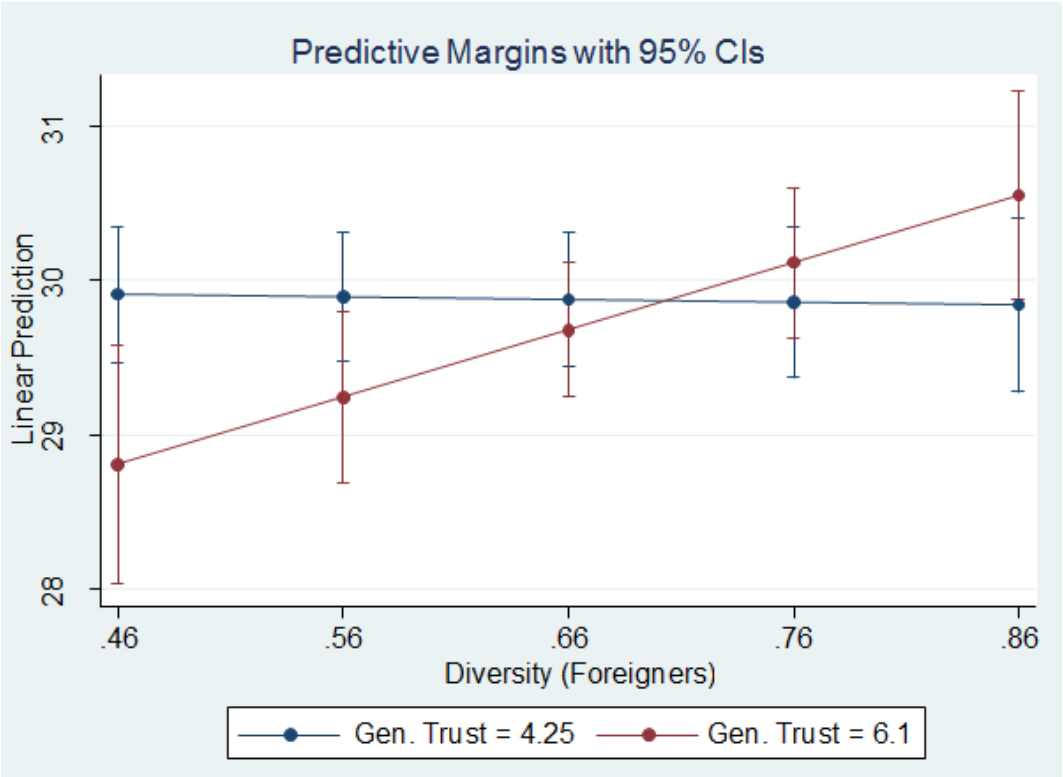
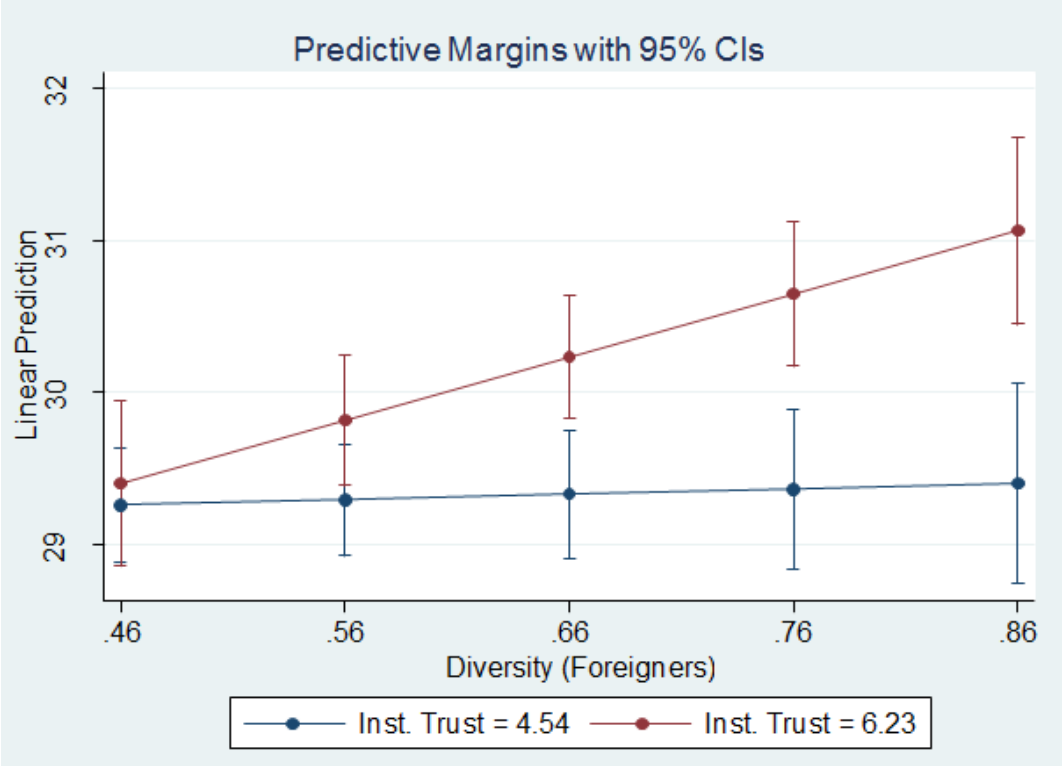


Figure 2.3 Margins Plot of Institutional Trust and Diversity among Foreigners



2.4.2 Robustness checks

To test the robustness of our empirical findings, we re-ran the previous regressions with additional control variables, different subsamples and an alternative diversity specification. Table 2.6 reports all the robustness checks that were performed. The first two columns of the table present the results according to specifications of Models 3 and 4 of Table 2.5, using the total number of hours worked per employee, share of employment in the industrial sector and number of patent applications per million inhabitants, with a two-year lag, as extra control variables. Our results appear to be robust against the inclusion of additional controls. Furthermore, the next two columns of the table exclude the outliers (Brussels, Inner London and Oslo), while the following four exclude the richest 10 per cent and the 10 per cent of regions with the highest share of foreigners of our sample, respectively. Finally, in the last two columns of the table, we recalculate the share of foreigners and foreigners' diversity, based this time on individuals' country of birth. Table 2.6 shows that our results hold for the various subsamples, when we include additional control variables and when we specify cultural diversity in alternative ways. Consequently, Table 2.6 confirms the validity of our previous findings.

Table 2.6 Robustness to Additional Controls, Different Subsamples and an Alternative Diversity Specification

Dependent Variable: GDP per capita	(1) Additional Controls	(2) Additional Controls	(3) Without Outliers	(4) Without Outliers	(5) Exclud. Richest 10%	(6) Exclud. Richest 10%	(7) Exclud. most Foreigners 10%	(8) Exclud. most Foreigners 10%	(9) Country of Birth	(10) Country of Birth
Generalized Trust	-1.797***		-1.600**		-1.970***		-1.821***		-2.982**	
	(0.487)		(0.608)		(0.693)		(0.653)		(1.336)	
Institutional Trust		-0.902**		-1.022***		-1.110***		-1.020**		-1.325**
		(0.357)		(0.374)		(0.396)		(0.411)		(0.578)
Share of Foreigners	-0.344	-1.005	-10.057	-26.721	-4.424	-18.435	-26.154	-36.540	-10.167	-5.212
	(13.379)	(14.686)	(12.979)	(18.875)	(13.955)	(17.352)	(36.761)	(30.449)	(24.129)	(21.464)
Foreigners Diversity	-12.132***	-9.222***	-9.128**	-8.758**	-12.531***	-9.061**	-10.831***	-8.654**	-16.756*	-9.934*
	(2.961)	(2.966)	(3.849)	(3.485)	(4.152)	(3.494)	(3.908)	(3.872)	(8.748)	(5.654)
Share of Foreigners X Generalized Trust	0.871		2.144		1.595		5.046		1.948	
	(3.016)		(2.945)		(3.400)		(7.437)		(4.276)	
Foreigners Diversity X Generalized Trust	2.680***		2.161**		2.933***		2.555***		3.935**	
	(0.632)		(0.843)		(0.924)		(0.885)		(1.893)	
Share of Foreigners X Institutional Trust		0.930		5.170		4.390		6.522		0.890
		(2.677)		(3.320)		(3.368)		(5.672)		(3.393)
Foreigners Diversity X Institutional Trust		2.029***		2.089***		2.188***		2.071***		2.703**
		(0.560)		(0.666)		(0.682)		(0.750)		(1.109)
Hours Worked	8.155*	8.441*								
	(4.242)	(4.246)								
Industry Share	30.393***	23.322**								
	(10.475)	(9.975)								
Patent Applications	0.010**	0.009**								
	(0.004)	(0.004)								
Constant	-29.710	-36.403	-4.269	-5.156	-15.028	-15.798	-10.430	-17.429	-4.337	-14.413
	(14.374)	(14.414)	(13.496)	(12.582)	(12.100)	(12.279)	(17.839)	(17.797)	(18.814)	(19.774)
Number of Regions	74	74	71	71	66	66	66	66	58	58
Observations	370	370	355	355	330	330	330	330	290	290
R-squared	0.570	0.580	0.510	0.555	0.541	0.565	0.487	0.513	0.423	0.442

Robust standard errors, clustered at the regional level, in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All models include the control variables presented in previous tables. In Models 9 and 10 the regions of Germany have been excluded since information about individuals' country of birth was not available.

2.4.3 Endogeneity and the instrumental variable

Although we aim to investigate the relationship between cultural diversity and economic performance, we cannot be sure of establishing a causal link from the former to the latter. Our analysis might suffer from reverse causality, given that richer regions attract a larger flow of immigrants than other regions and are therefore more culturally diverse. We attempt to tackle this endogeneity issue by applying an instrumental variable (IV) estimation approach. Our potentially endogenous share of foreigners and foreigners' diversity measures need to be replaced with proxies correlated with the observed variable but not otherwise correlated with regional income. The existing literature proposes an instrument that satisfies the properties mentioned above, based on the 'shift-share' methodology first applied by Card (2001) and widely used since in relevant studies (Ottaviano and Peri, 2006; Sparber, 2010; Bellini et al., 2013; Suedekum et al., 2014). The main idea behind this method is that new entrant immigrants tend to settle close to where other immigrants from their native country already live. However, due to a lack of information on the historical distribution of immigrants by group of origin we were only able to build such an instrument for the total share of foreigners, not for the foreigners' diversity variable. Nevertheless, it would be reasonable to assume here that any positive economic shock in a region should attract foreigners (of the seven broad groups of countries) to the same degree[10] and thus the foreigners' diversity variable could be considered as exogenous.[11]

To compute the predicted share of foreigners in a region following the 'shift-share' methodology we use the region's share of foreigners in 1998 and attribute the average growth rate of the share of foreigners in the country to which the region belongs.[12] For example, to

[10] Similarly, in their study Ottaviano and Peri (2006) argue that: "*...productivity shocks which attract workers into a city should attract the US-born and the foreign-born by the same degree*" [pages 29-30].
[11] As an additional robustness check of endogeneity, an alternative approach follows in which diversity among foreigners is also considered as endogenous.
[12] More information on the procedure applied to construct our instrument can be found in Ottaviano and Peri (2006).

construct the predicted share of foreigners in region i of country j in 2008, we first calculate the growth rate (g_j) of the share of foreigners $(fshare)$ in the country as follows:

$$(g_j)_{1998-2008} = \frac{[(fshare)_{2008} - (fshare)_{1998}]}{(fshare)_{1998}}$$

Then, we continue by calculating the attributed share of foreigners in region i in 2008 as:

$$(\widehat{fshare})_{2008} = (fshare)_{1998}\left[1 + (g_j)_{1998-2008}\right]$$

An analogous procedure is applied to compute the predicted share of foreigners in each region for each year. Since our instrument is built using the historical distribution of immigrants, we can assume that it is exogenous to country-specific economic shocks of that period. The first two columns of Table 2.7 report the first and second stage estimates of the IV regressions. The first-stage regression results present large Kleibergen–Paap Wald F statistics indicating that our instrument is a strong predictor of the actual share of foreigners. Finally, our IV regression results show that the effect of foreigners' diversity on regional GDP per capita remains positive and strongly statistically significant and is moderated by both the level of generalized trust and individuals' trust in institutions.

Additionally, we applied a novel method first proposed by Lewbel (2012) as an alternative robustness check for endogeneity.[13] In his study Lewbel presents a new technique for obtaining identification in models with endogenous or mismeasured regressors. The method works by exploiting model heteroscedasticity to construct instruments as simple functions of the available regressors. In Lewbel's approach, identification is achieved by having a vector of variables that are uncorrelated with the covariance of heteroskedastic errors. Considering the errors to be heteroskedastic and X a vector of observed exogenous

[13] For a more detailed explanation of this method, see Lewbel (2012), and for its implementation in Stata software, see http://www.stata.com/meeting/germany13/abstracts/materials/de13_baum.pdf.

regressors, each endogenous variable is regressed on the X vector. Then the generated instruments can be constructed as follows:

$$Z = (X - \bar{X}) \cdot \epsilon$$

where $\bar{X}$ is the mean of X and ϵ is the vector of residuals from the first-stage regression of each endogenous variables on all exogenous regressors.

Models 3-6 of Table 2.7 present the estimates of the IV regressions based on Lewbel's method. For the ease of comparison with the 'shift-share' methodology presented earlier, in Models 3 and 4 foreigners' diversity is considered as an exogenous variable, while in the last two models of the table it is treated as endogenous. The results of Models 3 and 4 show that the magnitude and significance of the estimated coefficients of both interaction terms remain almost unaffected. Furthermore, testing for the significance of the endogenous regressors in the structural equation, the statistic of Anderson-Rubin Wald test, which is robust to the presence of weak instruments, suggests that we can reject the null hypothesis that the coefficients of the excluded instruments are jointly equal to zero. In addition, using the Sargan-Hansen test, we failed to reject the null hypothesis ($p>0.05$) for the validity of the over-identifying restrictions for both of our models. Finally, the Davidson-MacKinnon test of exogeneity failed to reject the null hypothesis, thus supporting the consistency of our estimates. The results of Models 5 and 6, where foreigners' diversity is considered as an endogenous variable, are similar. While we cannot establish a full validity of generated instruments, the test results show the plausibility of the endogeneity correction strategy.

Table 2.7 Instrumental Variable Regressions

Dependent Variable: GDP per capita	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Second Stage						
Population Density	-21.435***	-22.124***	-17.968***	-18.511***	-19.549***	-17.756***
	(7.417)	(7.234)	(6.651)	(6.396)	(6.350)	(6.540)
Active Population	18.379**	22.139**	12.973	15.520*	13.667	15.741*
	(9.036)	(9.040)	(9.015)	(9.047)	(9.125)	(8.883)
Tertiary Education	0.029	0.027	0.016	0.016	0.021	0.012
	(0.050)	(0.049)	(0.043)	(0.044)	(0.046)	(0.044)
Generalized Trust	-1.306*		-1.784***		-2.207**	
	(0.685)		(0.655)		(0.976)	
Institutional Trust		-0.805		-0.864**		-0.979
		(0.606)		(0.434)		(0.693)
Share of Foreigners	-5.722	-8.440	-22.369	-3.430	-38.087	-14.615
	(18.206)	(24.947)	(24.733)	(26.762)	(26.068)	(29.467)
Foreigners' Diversity	-8.991**	-9.094**	-10.685***	-10.240***	-11.155*	-10.261**
	(4.065)	(4.387)	(3.954)	(3.510)	(5.706)	(4.102)
Share of Foreigners X Generalized Trust	-0.081		2.798		6.960	
	(3.868)		(5.361)		(5.443)	
Foreigners' Diversity X Generalized Trust	2.105**		2.452***		2.650**	
	(0.886)		(0.856)		(1.258)	
Share of Foreigners X Institutional Trust		0.932		-0.171		1.347
		(3.987)		(4.910)		(5.383)
Foreigners' Diversity X Institutional Trust		2.098**		2.288***		2.313***
		(0.817)		(0.662)		(0.734)
Observations	355	355	370	370	370	370
Number of Regions	71	71	74	74	74	74
R-squared	0.517	0.549	0.488	0.519	0.485	0.517
First Stage						
Predicted Share of Foreigners	0.765***	0.795***				
	(0.285)	(0.259)				
Predicted Share of Foreigners X Generalized Trust	0.570***					
	(0.151)					
Predicted Share of Foreigners X Institutional Trust		0.517***				
		(0.189)				
Kleibergen-Paap Wald F statistic	10.21	11.10				
Anderson-Rubin Wald statistic			55.68	170.99	156.47	238.33
Sargan-Hansen statistic			18.58	24.56	33.43	35.50
Davidson-MacKinnon statistic			1.26	0.41	1.73	0.57

Robust standard errors, clustered at the regional level, in parentheses *** p<0.01, ** p<0.05, * p<0.1. In Models 1 and 2 the regions of Hungary have been excluded since information about historical ditribution of foreigners was not available.

2.5 Discussion and conclusions

The current study empirically examines the impact of cultural diversity on economic performance in 74 regions of 12 European countries. In an effort to help explain the mixed findings in previous research, we start by investigating the moderating role of generalized trust in this relationship. According to past research, the level of trust people have in others is considered one of the main components of social capital, facilitating coordinated action and encouraging cooperative behaviour. Building on group theory, we argue that generalized social trust might be a necessary precondition to reaping the benefits of cultural diversity. Thus, we propose that the effect of cultural diversity on regional economic performance will be positively moderated by the level of generalized trust in a society.

Additionally, we examine the moderating role of individuals' trust in institutions on this relationship. Based on the existing literature, we argue that trust in institutions might be a prerequisite to enlarging interactions and enhancing cooperation among strangers by encouraging trust in other people, facilitating civic and political engagement on the part of individuals and reinforcing people's compliance with the rules. Finally, we hypothesize that cultural diversity has an impact on regional income, which is positively moderated by the level of institutional trust.

Our empirical results reveal a positive relationship between foreigners' diversity and regional economic performance in line with prior research (Ottaviano and Peri, 2006; Alesina et al., 2016a). More specifically, when comparing our findings to those of a previous study conducted in European regions by Bellini et al. (2013), we can confirm that diversity among foreigners has a positive and strongly significant effect on regional GDP per capita. However, contrary to past studies at the European regional level (Bellini et al., 2013; Brunow and Brenzel, 2011; Dohse and Gold, 2014), we did not find strong evidence that the share of foreigners is positively associated with regional income. Although the operationalization used

in all those studies was the same and we extracted data from the same sources as Brunow and Brenzel (2011) and Dohse and Gold (2014), the fact that our data set and level of analysis differed from those other studies could explain the different findings.

In summation, we found that it is not the size but the wider variety of the foreign population that is positively associated with regional income. These findings are consistent with the argument we presented in Section 2 that cultural diversity could be beneficial to economic performance: first, through skill complementarities developed among different individuals; second, because of alternative heuristics that people coming from different backgrounds follow to address complicated problems; and finally, due to the creation of new ideas and knowledge spillovers generated from the interaction of culturally diverse groups.

Some may find it surprising, though, that neither the relative size of the foreign population nor the overall cultural diversity in a region matters, only the diversity among foreigners. One plausible explanation for this could be related more to the structure and composition of the regional population and less to synergies and complementarities among the various groups of people in a region. For instance, when the majority of foreigners in a region have the same ethnic background, they are more likely to flock together and build their own local communities. Sometimes, the cultural distance between native populations and foreigners causes varying degrees of segregation; in more extreme cases, religious or other ideological differences that are particularly salient might spur polarization between groups. By contrast, when foreigners come from a wide variety of origins, they are much less likely to cluster and have stronger incentives to integrate into the local society. At the same time, the perceived threat from out-of-group foreigners might be weaker for the native population since the different ethnic groups are all small in size, which also increases opportunities for contact between natives and foreigners (Green et al., 2010).

The facets mentioned above facilitate the assimilation of foreigners into host regions and could explain why it is the greater diversity in foreign populations and not their relative size that leads to higher regional economic performance. Some clear implications emerge from these findings. First, it seems necessary that those responsible for policy making in European regions promote cultural pluralism and encourage entry of a mixture of foreigners from different ethnic backgrounds. This could be accomplished by, for instance, providing incentives to different groups of foreigners to relocate and then interspersing them more smoothly throughout their host societies, rather than allowing the concentration of a few large minorities isolated in social ghettos. In addition, European governments could adopt a more efficient, proactive policy of considering the type of immigrants that integrate into each region, with a view to enriching the diversity among the foreign population. Although these are plausible interpretations of our findings as related to the structure of regional populations, future research may be needed to investigate this further.

With regard to the interaction effects of our analysis, we found that in regions with low levels of generalized social trust, the benefits of foreigners' diversity were absent, while in regions with high levels of generalized social trust, the benefits were significant. Therefore, we suggest that the positive effect of foreigners' diversity on regional economic performance is apparent only in regions where the level of generalized social trust is high. Our empirical results partly confirm those of Kemeny (2012), which is, to the best of our knowledge, the only previous study to examine the moderating role of generalized trust in the relationship between cultural diversity and economic performance. Similar to our findings, Kemeny (2012) argues that individuals benefit more from the productivity spillovers that arise from cultural diversity when they live in cities with higher levels of generalized trust. However, our results differ in the sense that generalized trust positively moderates the relationship between foreigners' diversity, but not the size of foreign population, and regional income.

In addition, we show that individuals' trust in institutions positively and significantly moderates the same relationship. More specifically, our results showed that in regions with low levels of institutional trust, the benefits of foreigners' diversity were insignificant, but in regions with high levels of institutional trust, the benefits of foreigners' diversity were apparent. Thus, we argue that foreigners' diversity has a positive impact on regional economic performance only in regions where the individuals' trust in institutions is high. Considering that individuals' trust in institutions actually reflects the quality and performance of those institutions (Newton, 1999; Newton and Norris, 2000), our findings are consistent with those of Kemeny and Cooke (2017b), who found that in US cities with high levels of inclusive institutions, the benefits of immigrant diversity were positive and significant.

Consequently, our empirical results indicate that both the level of trust that people place in strangers and the trust that individuals have in political and social institutions can play an important role in catalysing the potential benefits of foreigners' diversity. One straightforward policy recommendation we can draw from these findings is that culturally heterogeneous regions of Europe need to encourage individuals' trust in other people in order to reap the benefits of diversity. Past research provides evidence that a high level of generalized trust is associated with less corruption (La Porta, 1997), better education systems and less ethnically fragmented societies (Alesina and La Ferrara, 2002; Leigh, 2006). We would therefore recommend that decision makers prevent corruption in public organizations, invest in education and promote the efficient integration of foreigners into local communities. At the same time, policy makers in European regions are advised to encourage people's trust in public institutions by, for instance, improving the general credibility of their country's parliamentary bodies, the efficiency of their legal systems and the performance of their police authorities.

Of course, our empirical analysis is not without limitations. First, we have assumed here that all of the cultural groups we defined are equidistant to one another. Some could argue, however, that important dissimilarities exist between certain cultures compared to others. Therefore, an interesting extension of this study would be to find a way to account for cultural distances between cultural groups and control for the degree of their integration. In addition, further research could be conducted to explore how our results might vary across different segments of the labour force, especially broken down according to skill level. Finally, the fact that our analysis is based on data from 74 European regions suggests that our results may not be entirely representative for other geographical areas, which limits the generalizability of our findings.

To conclude, although the present analysis may suffer from certain limitations, the research outcomes of this study not only make an important contribution to the empirical academic literature but could also be a useful and effective tool for policy making in European regions.

Chapter 3
Immigrants' Origin and Skill level as Factors in Attitudes toward Immigrants in Europe

Abstract

The issue of immigration, and policy responses to it, is driving key political debates in most European countries. A growing backlash appears to be manifest on several levels including the attitude of individual members of the public, organized political parties or factions, and governmental policy. While existing research has tended to examine public attitudes toward immigrants with a focus on the individual characteristics of those holding the views (e.g. age, gender, education), few studies have considered characteristics of the immigrants themselves as a driving factor in attitudes toward immigration. This study examines characteristics of immigrants as independent variables, differentiating immigrants' origin (EU/non-EU) and immigrants' skill level (low/highly-educated). It utilizes data from the European Labour Force Survey (EU-LFS) and the European Social Survey (ESS) to evaluate the extent to which characteristics of immigrants drive anti-immigrant public sentiment. This investigation finds that for immigrants living in a European region, their origin is a significant determinant of attitudes toward immigration. In addition, our empirical results do not reveal any significant direct effect of immigrants' skill level on attitudes toward them. Nevertheless, we find some moderating effect between the size and the skill level of immigrant population in shaping natives' attitudes toward immigration.

3.1 Introduction

Immigration poses a significant policy-making challenge for advanced industrial countries in the 21st Century. Civil wars and conflicts along with economic underdevelopment, instability, and political corruption are among the many factors driving ethnic nationals to seek relocation in foreign lands. Several factors have made Western Europe among the top destinations for immigrants. These include democratic political stability, relative prosperity and higher standards of living, comparatively sizable social welfare states, perceived social opportunity, and central geographic location relative to many areas that emigrants presently flee. Governments across the advanced industrial world, and especially those of Western Europe, have confronted rising tides of immigration in recent years amidst a backdrop of increased public resentment of immigrants entering their societies. This has made the challenge of policy response especially difficult.

This study examines public attitudes toward immigrants in 78 European regions. Much existing research on Western Europe and beyond has tended to investigate the phenomenon of immigration by linking attitudes toward immigrants to the individual characteristics of those holding particular viewpoints, whether positive or negative (Mayda, 2006; O'Rourke and Sinnott, 2006; Facchini and Mayda, 2008; Pardos-Prado, 2011). However, this study flips the focus by turning attention to the characteristics of immigrants living in a European region. Using existing theories regarding how economic conditions, cultural identity frameworks, and interaction or contact with immigrants may affect perceptions of and attitudes toward them, this paper differentiates itself from much of the past literature by placing weight on the traits of the immigrants themselves as highly determinative of attitudes toward immigration. We do this in our analysis by controlling for individual traits such as age, gender, or employment status that may account for some of the more idiosyncratic factors shaping sentiment toward immigrants.

This study builds on previous empirical research that examines the impact of regional factors on European attitudes towards immigrants (Schlueter and Wagner, 2008; Rustenbach, 2010; Markaki and Longhi, 2013; Bridges and Mateut, 2014; Weber, 2015) and attempts to investigate how the characteristics of immigrants drive public sentiment to be more or less anti-immigrant. Utilizing data from the European Labour Force Survey (EU-LFS) and the European Social Survey (ESS) over the period 2004-2012, we evaluate the extent to which origin (EU/Non-EU) and skill level (low/high-educated) of immigrants living in a given region affect natives' attitudes toward them. Our work is similar to the study conducted by Markaki and Longhi (2013), yet we differentiate ourselves from the authors in several ways, primarily by distinguishing non-EU immigrants into six broad groups of origin which is the main empirical contribution of this study.

Our results indicate that the proportion of foreigners in a given region does not appear to be a significant factor in shaping attitudes toward immigration. However, when we distinguish between different groups of immigrants, we find that immigrants' origin seems to play a key role. In addition, although we do not find any significant direct effect of immigrants' skill level as measured by level of educational attainment in shaping attitudes toward them, our empirical results reveal some evidence that immigrants' skill level might interact with the size of immigrant population to influence the portrayal of immigrants in the minds of natives.

3.2 Factors Shaping the Attitudes of Natives toward Immigrants

Traditionally, it is the person holding the attitude who has been the focus of attempts to account for attitudes toward immigrants. The individual factors shaping their attitudes has been the subject of study. Much conventional wisdom expects that one's attitudes are shaped primarily by demographic factors such as one's age or gender, social factors including one's level of education, income or social class status i.e. level of wealth, or cultural identity factors

that manifest themselves in cultural protectionism and racial prejudice. Much debate has played out over the relative weight of contextual factors in absolute conditions where economic versus socio-cultural or socio-political factors are weighed against one another (Card, Dustmann, and Preston 2012; Dustmann and Preston 2007; Gang, Rivera-Batiz, and Yun 2013; Rydgren 2007). Here crime, economic prosperity, and other social milieu variables are tested in relation to attitudes toward immigrants. Some studies have moved away from demographics and contextual factors or added to those in order to consider transitory and variable beliefs that individuals hold, in other words how certain attitudes held, in turn, affect attitudes toward immigrants (Rustenbach 2010; Masso 2009). For instance, trust in government and trust in other people can be considered for how they affect attitudes toward immigrants.

Politics has become a key focus in recent decades with perceptions superseding individual and contextual conditions as driving factors in shaping negative attitudes. Often shaped by politics, perceptual factors tend to include expectations of threat (typically extending well beyond actual threat prospects), prejudice and racism, or scapegoating where subjects look for someone or something to blame as a target of their generally unrelated anger and frustration. Scholars argue that attitudes are shaped instrumentally by political actors rather than existing in isolation. Such work examines the role of political actors in structuring or manipulating attitudes toward immigrants and some work contends that political parties and interest groups have played a large role in shaping public attitudes. Norris (2005) refers to the way political parties and interest groups have shaped public discourse and the debate surrounding immigration as the *supply side* factor driving anti-immigrant attitudes. She argues that party agency, in framing the immigration issue, has often proven more important empirically than the *demand side* despite the fact that the latter has received greater emphasis in the existing literature. For Norris (2005), *demand side* includes the actual context and

individual conditions of individuals that motivate them to be anti-immigrant. Populist radical right-wing parties have been defined in the literature by their anti-immigrant framing of contemporary political issues with immigrants often the scapegoats for problems such as crime, access or quality concerns regarding welfare state provisions (including health care, housing and education), high unemployment or other economic malaise, and domestic security threats including Islamic terrorism (Williams 2006, 60). The politics surrounding attitudes to immigration occupies a significant place in the literature, with particular focus on the political parties and other actors that use tactics aimed at shaping public attitudes toward immigrants.

Existing scholarship provides several competing frameworks for understanding the way that attitudes toward immigrants are shaped, both directly by individual conditions and local context but also indirectly by politics and intermediate ideology or values.

3.2.1 Competition Theory / Economic determinants

Competition theory suggests that economic conditions drive attitudes toward immigrants as natives react to economic changes in various ways (Malchow-Moeller *et al*. 2008; Huber and Oberdabernig 2015; Kazaqi 2015; Scheve and Slaughter 2001; Schneider 2008; Strabac and Listhaug 2007). A common notion is that economic downturn fuels anti-immigrant sentiment (Facchini and Mayda 2008; Goldstein and Peters 2014; Hatton 2016). The view that immigrants are a burden on a state's ability to provide welfare benefits, or that they drain welfare states and extract a disproportionate share of limited resources, has been evaluated as a driving factor in negative attitudes toward immigrants (Facchini and Mayda 2009). Labour market threat has been considered, as some studies evaluate the extent to which natives appear to view immigrants as their main competition for scarce jobs (Kunovich 2013). Some work in this area has considered the difference that the level of education and skill level of the attitude holder make to their attitude toward immigrants (Hainmueller and Hiscox 2007).

3.2.2 Conflict Theory / Identity and Values determinants

The idea that race and racial prejudice drives some people toward visceral negative attitudes toward immigrants has also been evaluated in the literature. This theory tends to reflect a clash of cultures logic, whereby individuals recognize in-group and out-group markers differentiating people according to race and physical features, religious practices and customs, and distinctive traditions or observable cultural practices. It holds that observable difference leads to discrimination and often animosity between groups with a preference for their own race (Gorodzeisky and Semyonov 2016; Hainmueller and Hiscox 2007; Pehrson and Green 2010; Malhotra 2013). Some work in this area has drawn upon Ronald Inglehart's logic in asserting post-industrial society changes (1990) to account for conditions of economic prosperity being correlated with increasing levels of anti-immigrant sentiment in many instances – a paradox given the logic of economic condition and competition theory arguments that suggest the opposite. Such work claims that economic prosperity and security can lead to a focus on identity and culture, or to more emphasis on political preferences and ideology, in structuring attitudes, especially negative attitudes, toward immigrants (O'Connell 2005; Pardos-Prado 2011). This logic is used, for instance, to account for advanced industrial societies currently appearing to be prone to the rise of radical-right wing parties and increasing anti-immigrant sentiment.

3.2.3 Contact Theory / Interaction determinants

Contact theory holds that direct experience and interaction between the national population and the immigrants that it hosts tends to build bridges and lead to common understandings. Some contingencies for contact theory have been tested, such as effects of national versus regional effects (Kauffman and Harris 2015; Weber 2015), region or city size (urban vs. mid-range population, vs. small / rural) as a factor (Barone *et al*. 2014), and the role of size and concentrations of immigrant populations (Green *et al*. 2010; Dustmann and Preston 2001;

Schlueter and Wagner 2008; Barone *et al*. 2014). Notably, some studies have drawn decisive conclusions that contradict contact theory, suggesting instead that interaction with immigrants breeds resentment rather than harmony or is not strong enough to overcome other driving factors that produce anti-immigrant sentiment (Careja 2016; Karreth *et al*. 2015).

3.3 Theoretical considerations and related empirical research

This study situates itself among those studies investigating whether certain characteristics of immigrants affect public attitudes toward them. In particular, we contribute to the literature on attitudes formation by evaluating the extent to which the origin and the skill level of immigrants drive public sentiment to be more or less anti-immigrant. To date, a few studies at European level have emerged that consider the characteristics of the immigrant population as determinative. Most of these studies show that origin of immigrants plays an important role in explaining anti-immigrant attitudes, with higher ethnic distance between natives and immigrants generating more negative attitudes. These findings seem to be driven more by cultural concerns and less by economic considerations. However, the results about the impact of immigrants' skill level on natives' attitudes toward them are mixed. Below, we summarize the main findings of the related empirical research. Table 3.1 presents them in a simplified form.

Table 3.1 Summary of findings of related studies

Study	Level	Data Source	Sample	Concluding Findings
Bridges and Mateut (2014)	Country	ESS (round 1, 2, 3)	21 Countries	A higher proportion of non-national workers in the respondent's occupation, makes natives have a more negative attitude towards the arrival of same-race immigrants. However, immigrants from a different race are found to be perceived as a greater threat with respect to the country's culture.
Dustmann and Preston (2007)	Country	British Social Attitudes Survey	United Kingdom	Opposition to further immigration is strongly associated with the origin of the immigrant. The more ethnically distinct the immigrant population is, the stronger the anti-immigrant attitudes about economic, welfare and cultural concerns.
Gorodzeisky and Semyonov (2009)	Country	ESS (round 1)	21 Countries	Natives have stronger exclusionary views about the admission and allocation of rights towards immigrants of non-European origin than about immigrants of European origin.
Scheepers *et al*. (2002)	Country	Eurobarometer Survey	15 Countries	A higher proportion of Non-EU citizens in a country increases natives' opposition to civil rights for legal migrants as a response to perceived ethnic threat.
Schneider (2008)	Country	ESS (round 1)	22 Countries	A larger immigrant population of non-western origin increases the average perceived ethnic threat in a country. Yet, this effect is not linear, as the quadratic term of the variable is found to be negative and statistically significant. However, the share of immigrants with low levels of education relative to the total population is not found to be a significant predictor.
Hainmueller and Hiscox (2007)	Country	ESS (round 1)	22 Countries	Highly-educated individuals are more likely to favour immigration regardless of the origin of immigrants (European/Non-European) and their skill level (low/high).
Facchini and Mayda (2012)	Country	ESS (round 1)	21 Countries	Unskilled natives are more in favour of highly skilled immigrants than skilled natives are.
O'Connell (2011)	Country	ESS (round 1)	20 Countries	No significant evidence that highly skilled natives feel threatened by highly skilled immigrants.
Schuelter and Wagner (2008)	Regional	ESS (round 1)	22 Countries	A larger size of the regional non-national workforce increases both intergroup contact and perceived group threat at the NUTS-2 regional level.
Rustenbach (2010)	Regional	ESS (round 1, 2)	15 Countries	The regional number of immigrants does not seem to affect natives' attitudes towards immigration at the NUTS-2 regional level.
Weber (2015)	Regional	EVS (wave 4)	15 Countries	The regional proportion of immigrants has no significant impact on perceived threat of immigration at the NUTS-2 regional level. However, when respondents are grouped into a lower (NUTS-3) or a higher (NUTS-1) regional level, then the results indicate that a higher percentage of immigrants in the region decreases perceived group threat.
Karreth et al. (2015)	Regional	ESS (round 1, 2, 3, 4)	Austria Germany Switzerland	No significant evidence that a higher total share of foreigners has an impact on anti-immigrant attitudes in the regions of Austria (NUTS-2), Germany (NUTS-1) and Switzerland (NUTS-2). Nevertheless, an increasing immigration from Non-Western countries leads to more negative attitudes toward immigrants, but only between natives with right-wing political ideology.
Green et. al (2010)	Municipal	ESS (round 1)	Switzerland	A higher proportion of Northern/Western European immigrants increases intergroup contact which in turn indirectly decreases anti-immigrant attitudes.
Markaki and Longhi (2013)	Regional	ESS (round 1, 2, 3, 4)	24 Countries	A higher percentage of immigrants in the region (NUTS-1) increases the probability that the native population perceives immigrants as a threat to the country's economy, culture and quality of life. These negative attitudes towards immigration are driven by the number of non-EU immigrants in the region. Finally, a higher proportion of immigrants with low education is found to decrease the perceived economic threat of immigration.

At country level, drawing data on 21 European countries from the ESS, Bridges and Mateut (2014) find that fears over labour market competition, captured by the proportion of non-national workers in the respondent's occupation, lead natives to have more negative attitudes towards the arrival of same race immigrants. However, immigrants from a different race are found to be perceived as a greater threat with respect to the country's culture. Furthermore, using data from the British Social Attitudes Survey and distinguishing between immigrants from four different regions of origin, Dustmann and Preston (2007) argue that opposition to further immigration is strongly associated with the origin of the immigrant. More specifically, the authors show that the more ethnically distinct the immigrant population is the stronger the anti-immigrant attitudes about economic, welfare and cultural concerns.

The findings presented by Gorodzeisky and Semyonov (2009), who also use data on 21 countries from the ESS, confirm that public attitudes towards inclusion of immigrants in European societies are influenced by the ethnic origin of immigrants. In particular, according to the authors, when it comes to admission and allocation of rights natives have stronger exclusionary views towards immigrants of non-European origin than immigrants of European origin. Similarly, employing cross-national data from the Eurobarometer survey on 15 countries of the EU, Scheepers *et al*. (2002) show that, as a response to perceived ethnic threat, having a higher proportion of Non-EU citizens in a country does increase natives' opposition to legal migrants being afforded civil rights.

Additionally, in order to provide a contextual explanation of cross-national differences in anti-immigrant attitudes, Schneider (2008) uses data on 22 European countries from the first round of the ESS. The results of his contextual analysis show that the origin of immigrants, serving as a proxy of perceived cultural threat, seems to be an

important factor in shaping natives' attitudes towards immigration. In particular, the author shows that having a larger immigrant population with non-western origin increases the average perceived ethnic threat in a country. However, this effect is not linear as the quadratic term of the variable is found to be negative and statistically significant, suggesting that above a threshold level, the average perception of ethnic threat decreases with an increasing share of non-western immigrants. To the contrary, the share of low-educated immigrants relative to the total population, used by the author to test the hypothesis of economic competition between immigrants and natives, is not found to be a significant predictor.

Using data from the same sample, Hainmueller and Hiscox (2007) find that high-educated individuals are more likely to favour immigration regardless of the origin of immigrants (European/Non-European) and their skill level (low/high). According to the authors, this occurs because people with higher education levels are generally less racist and more open to cultural diversity, but they are also more likely to believe that immigrants benefit the country's economy. However, drawing data from the first round of the ESS too, Facchini and Mayda (2012) conclude that unskilled natives are more in favor of highly skilled immigrants than skilled natives are. Yet, another study, conducted by O'Connell (2011) and using the same source of data, does not find any significant evidence to support that highly skilled natives feel threatened by highly skilled immigrants. According to the author, this can be explained by the fact that there is no direct labour competition between the two groups.

There have been a few more studies that, like our own, examine natives' attitudes toward immigrants at the European regional level. With respect to the impact of the size of the immigrant population on attitudes toward immigration, the results of this research seem to be mixed. Trying to explain immigrant derogation between European regions, and using

data from the first round of the ESS, Schuelter and Wagner (2008) find that the greater the size of the regional non-national workforce, the greater both intergroup contact and perceived group threat. Yet, Rustenbach (2010), who draws data from the same source, concludes that number of immigrants in a region does not appear to affect natives' attitudes towards immigration. Similarly, using data from the European Value Survey (EVS) but at the same regional level (NUTS-2), Weber (2015) shows that the regional proportion of immigrants has no significant impact on perceived threat from immigration. However, when respondents are grouped into a lower (NUTS-3) or a higher (NUTS-1) regional level, then the results indicate that a higher percentage of immigrants in the region decreases perceived group threat.

Similar to the country level research, some other empirical studies attempt to investigate whether the origin or the skill level of immigrants affect anti-immigrant attitudes at European regional level. Employing data from regions of Austria (NUTS-2), Germany (NUTS-1) and Switzerland (NUTS-2), Karreth *et al*. (2015) do not find any significant evidence to support that a higher total share of foreigners has an impact on anti-immigrant attitudes. Nevertheless, they show that an increasing immigration from non-Western countries leads to more negative attitudes toward immigrants, but only among natives with right-wing political ideology. Moreover, using information from the ESS for Swiss municipalities, Green *et al.* (2010) note that a higher proportion of Northern/Western European immigrants increases intergroup contact which in turn indirectly decreases anti-immigrant attitudes. These findings confirm the hypothesis of the authors that the presence of 'culturally similar' immigrants from rich countries should diminish negative attitudes towards immigration. However, a high proportion of Muslim immigrants in a Swiss municipality is found to increase the perceived threat of immigration. In addition, also drawing data from the ESS, Markaki and Longhi (2013) show that a higher percentage of

immigrants in the region increases the probability that the native population perceives immigrants as a threat to the country's economy, culture and quality of life. Their empirical results reveal that these negative attitudes towards immigration are driven by the number of non-EU immigrants in the region. Finally, contrary to the labour market competition theory, the authors find that a higher proportion of immigrants with low education decreases the perceived economic threat of immigration.

Our research is influenced by the fact that attitudes toward immigrants cannot be adequately explained by economic factors, social factors, political factors, racial prejudice or even the attitude-holder's own milieu, when these are taken in isolation. Instead, all of these seem to come together and interact to generate anti-immigrant attitudes in much the same way that voting studies have long been frustrated by a lack of clear causal factors driving the outcome. We assert, therefore, that no single theory with corresponding discrete variables captures what is happening and can account for anti-immigrant sentiment, but rather each contributes an aspect of it. For this reason, we build our models in the analysis drawing variables from each of the three theoretical approaches discussed before, also following the design of the few existing studies mentioned above in the literature review where attitudes toward immigrants are shaped not only by individual conditions of the attitude-holder but also by the characteristics of the immigrants.

Several assumptions from the existing literature inform our analysis. First, we may observe that economic conditions correlate positively with attitudes toward immigrants so that better economic conditions correspond to more positive attitudes toward immigrants, as suggested by economic competition theory. Second, we expect that cultural difference correlates negatively with attitudes toward immigrants whereby attitudes become more negative as cultural difference increases, which is consistent with conflict and identity theory. Third, we may see that increasing contact with immigrants produces more positive

attitudes toward them, as predicted by contact theory. We do not set out to test these theories, however their logic and assumptions inform our framework and understanding of anti-immigrant attitudes including how we determine variables for our models.

3.4 Data and Methods

We use explanatory variables at two different levels, the individual and the regional. Our central research questions focus on regional level factors that shape attitudes held by natives toward immigrants living within the same geographic region. In particular, we investigate how origin and skill level of immigrants within a given region affect native attitudes toward them. While the focus is on regional level determinants, we use individual level data in order to control for the more idiosyncratic factors of individual anti-immigrant attitudes. We do present the individual level determinants in summary form but treat it as a step in controlling for factors that could offset our regional level focus.

The structure of our investigation combines individual-level information with regional-level data from a number of sources. In particular, for our dependent variables and individual-level predictors we use survey data from the European Social Survey (ESS). In addition, regionally aggregated indicators are computed from the European Union Labour Force Survey (EU-LFS). Finally, data on regional control variables are provided by the Regional Database of Cambridge Econometrics and the Regional Statistics Database of Eurostat.

We restrict our sample to five rounds (2004-2012) of the ESS and focus on respondents from 78 regions of 16 European countries. This choice has been forced by the limited available information on the proportion of foreign population by group of origin at the regional level. However, the regions observed in the study host, on average, approximately 80 per cent of the foreign population living in the European Union (EU) countries, including Norway and Switzerland. Additionally, although most countries in our

sample participated in all five rounds of the ESS, we also include in our analysis those countries that participated in only some of them.

The regional level we use is based on the Nomenclature of Units for Territorial Statistics (NUTS) of the EU which classifies countries into regions according to demographic and socioeconomic characteristics. The NUTS are divided into three hierarchical levels, where the NUTS-3 level represents a more detailed classification of regions and NUTS-1 level a broader one. We use data at the NUTS-1 level at which regions are geographically large enough to minimize any potential bias due to self-selection of natives in their location choices (Dustmann and Preston, 2001).[14] However, the NUTS-2 level is used in those cases where the NUTS-1 level corresponds to the whole country and data at the NUTS-2 level are available.

Finally, because this study examines natives' attitudes towards immigrants, we exclude from the sample all individuals without national citizenship and those who were born outside the country. Nevertheless, similarly to Markaki and Longhi (2013) we include in the analysis ethnic minorities and second-generation immigrants, but controlling for both, to capture differences between individuals who have immigrant background and those who have not. Table 3.2 presents the structure of the pooled cross-sectional sample.

[14] It is more likely that those natives who dislike immigrants will respond to an increasing concentration of foreigners within their region of residence by relocating to areas where fewer immigrants live.

Table 3.2 Pooled cross-sectional sample

Country (ID)	Regions	NUTS-Level	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Austria (AT)	3	NUTS-1	1420	1557	-	-	-	**2977**
Belgium (BE)	3	NUTS-1	1276	1349	1300	1266	1388	**6579**
Cyprus (CY)	1	NUTS-1	-	661	754	541	602	**2558**
Czech Republic (CZ)	1	NUTS-1	1561	-	1461	1755	1225	**6002**
Germany (DE)	16	NUTS-1	2089	2114	2140	2286	2324	**10953**
Denmark (DK)	1	NUTS-1	1232	1252	1369	1325	1377	**6555**
Spain (ES)	7	NUTS-1	987	1272	1549	1277	-	**5085**
Finland (FI)	3	NUTS-2	1527	1484	1712	1471	1912	**8106**
France (FR)	8	NUTS-1	-	1540	1591	1331	1499	**5961**
Greece (GR)	4	NUTS-1	1405	-	1234	1330	-	**3969**
Hungary (HU)	3	NUTS-1	876	1041	986	1095	1378	**5376**
Netherlands (NL)	1	NUTS-0	1467	1516	1387	1463	1495	**7328**
Norway (NO)	7	NUTS-2	1391	1333	-	1275	1345	**5344**
Portugal (PT)	5	NUTS-2	978	1128	1187	1184	1202	**5679**
Sweden (SE)	3	NUTS-1	1358	1233	1270	1170	1440	**6471**
United Kingdom (UK)	12	NUTS-1	1408	1732	1762	1682	1543	**8127**
Total	**78**		**18975**	**19212**	**19702**	**20451**	**18730**	**97070**

Notes: The NUTS-2 level is used in the cases of Finland, Norway and Portugal where the NUTS-1 level corresponds to the whole country and data at the NUTS-2 level are available. For the Netherlands data are available only at the country level (NUTS-0). The two autonomous regions of Portugal, the Azores and Madeira, are excluded. For Austria, Cyprus, Czech Republic and Greece, ESS does not provide information for the missing rounds. For Norway (Round 4), Spain (Round 6) and France (Round 2) there are too many missing observations in our dataset that the samples could not be representative of the entire regions for that particular year and thus we exclude them from our analysis.

3.4.1 Dependent variable

The dependent variable, anti-immigrant attitudes, is measured using the respondents' answers to three different questions in the ESS. More specifically, we construct our dependent variable based on the following questions:

- *"Would you say it is generally bad or good for the **country's economy** that people come to live here from other countries?"*

- *"Would you say that the **country's cultural life** is generally undermined or enriched by people coming to live here from other countries?"*
- *"Is the **country** made a worse or a better place to live by people coming to live here from other countries?"*

To evaluate attitudes toward immigrants the questions use a scale that ranges from 0 to 10. The original question items are reverse recoded so that higher values indicate greater anti-immigrant attitudes. The three distinct measures allow us to compare natives' attitudes towards immigrants in relation to, respectively, the country's economy, culture and life in general. Alternatively, we argue that these measures represent the economic, cultural and overall perceived threat of immigration. For summary statistics on the average regional attitudes towards immigrants see Table 3.3.

Table 3.3 Dependent variables summary statistics

Dependent Variable	Mean	Std. Dev.	Min	Max
Average Regional Economic Threat	5.17	.722	3.23	7.19
Average Regional Cultural Threat	4.47	.909	2.51	7.20
Average Regional Overall Threat	5.30	.741	3.15	7.65

Note: This table presents summary statistics for the average regional attitudes towards immigrants in our three models. The number of observations for all variables is N=349.

3.4.2 Individual predictors

We build our individual-level independent variables based on the existing empirical literature on attitudes towards immigration (Mayda, 2006; O'Rourke and Sinnott, 2006; Rustenbach, 2010; Facchini and Mayda, 2012; Markaki and Longhi, 2013).

The first set of individual-level predictors consist of the demographic background characteristics of the ESS respondents. In our analysis, apart from gender, the age of

individuals in two main categories is included. One category comprises respondents under 25 years old and the other those who are more than 60 years old. We also add controls for individuals who have one or both parents born abroad, and for those who belong to an ethnic minority. In addition, we include dummy variables for people who live in big cities, suburbs of big cities and rural areas to compare them with those who are residents of small cities or towns.

The education level of respondents is measured using two binary indicators, one for people with primary education (ISCED 0-1) and another for those who have tertiary education (ISCED 5-6). Labour market characteristics are operationalized using various dummies: whether the person is employed or unemployed, whether she or he has supervisory duties, whether the respondent has ever been a member of a union, and finally whether the person has ever worked abroad.

With regard to a household's economic situation and general satisfaction with the country's economy two additional variables are used. The first is a dummy variable that indicates whether people find it difficult or not to cope with their current income while the second one measures how dissatisfied respondents feel with the present condition of the economy in the country using a scale ranging from 0 to 10. Furthermore, a set of social indicators are added that measure how religious the respondents are, how important it is to them to follow traditions and customs, how much trust they show in others and, as a proxy for an area's security, how safe they feel walking alone in their neighborhood after dark. Finally, our analysis includes a variable which evaluates the political ideology of the person based on their self-placement on a left-right scale. Table 3.4 provides summary statistics for individual-level variables and Table 3.5 presents their correlation matrix.

Table 3.4 Individual level summary statistics

Individual Variable	Mean	Std. Dev.	Min	Max
Demographic Features				
Male	.497	.499	0	1
Under 25 years old	.078	.268	0	1
Over 60 years old	.286	.452	0	1
Big City Resident	.191	.393	0	1
Suburbs of Big CityResident	.133	.340	0	1
Rural Area Resident	.359	.480	0	1
Foreign Parent(s)	.062	.242	0	1
Belong to Minority	.017	.129	0	1
Qualification Level				
Primary Education	.138	.345	0	1
Tertiary Education	.286	.452	0	1
Labour Market Characteristics				
Employed	.583	.493	0	1
Unemployed	.038	.191	0	1
Supervisor Duties	.307	.461	0	1
Member of a Union	.494	.499	0	1
Have Worked Abroad	.042	.202	0	1
Economic Indicators				
Difficult to Cope on Income	.198	.398	0	1
Dissatisfied with Economy	5.32	2.50	0	10
Social Indicators				
Trust in Others	5.32	2.36	0	10
Religious	4.32	2.95	0	10
Feel Safe in Dark	.796	.402	0	1
Believe Traditions are Important	.717	.450	0	1
Political Affiliation				
Right-wing Ideology	5.10	2.16	0	10

Note: The above table presents summary statistics for all individual level variables included in our empirical analysis. The number of observations for all variables is N=97,070.

Table 3.5 Correlation matrix of individual level variables

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1) Economic Threat	1.00																								
(2) Cultural Threat	0.62	1.00																							
(3) Overall Threat	0.65	0.69	1.00																						
(4) Male	-0.06	0.02	0.00	1.00																					
(5) Under 25 years old	-0.00	-0.03	-0.03	0.01	1.00																				
(6) Over 60 years old	0.05	0.10	0.08	0.01	-0.18	1.00																			
(7) Big City Resident	-0.04	-0.03	-0.02	-0.01	0.01	-0.02	1.00																		
(8) Suburbs of Big CityResident	-0.04	-0.04	-0.04	-0.00	0.00	0.01	-0.19	1.00																	
(9) Rural Area Resident	0.05	0.04	0.04	0.03	-0.02	0.01	-0.36	-0.29	1.00																
(10) Foreign Parent(s)	-0.03	-0.04	-0.04	-0.01	0.04	-0.03	0.03	0.03	-0.05	1.00															
(11) Belong to Minority	0.00	-0.00	-0.00	0.01	0.02	-0.03	0.02	0.00	-0.02	0.13	1.00														
(12) Primary Education	0.13	0.16	0.15	-0.01	-0.08	0.31	-0.04	-0.02	0.06	-0.03	0.00	1.00													
(13) Tertiary Education	-0.24	-0.24	-0.22	-0.01	-0.10	-0.12	0.09	0.06	-0.10	0.01	-0.00	-0.25	1.00												
(14) Employed	-0.09	-0.11	-0.11	0.07	-0.04	-0.58	0.01	0.01	-0.00	0.00	-0.00	-0.26	0.20	1.00											
(15) Unemployed	0.05	0.02	0.04	0.00	0.04	-0.11	0.01	-0.00	-0.01	0.02	0.03	-0.01	-0.04	-0.22	1.00										
(16) Supervisor Duties	-0.10	-0.06	-0.07	0.18	-0.11	0.04	-0.02	0.04	-0.01	0.01	-0.01	-0.11	0.18	0.06	-0.06	1.00									
(17) Member of a Union	-0.07	-0.11	-0.11	0.06	-0.18	0.10	-0.05	0.04	-0.02	-0.02	-0.03	-0.10	0.10	0.01	-0.05	0.07	1.00								
(18) Have Worked Abroad	-0.04	-0.04	-0.04	0.06	-0.02	-0.07	0.02	-0.00	-0.02	0.01	0.00	-0.03	0.07	0.06	0.00	0.05	-0.02	1.00							
(19) Difficult to Cope on Income	0.18	0.17	0.19	-0.05	-0.02	0.00	0.05	-0.04	-0.01	0.01	0.05	0.14	-0.17	-0.16	0.17	-0.14	-0.09	-0.01	1.00						
(20) Dissatisfied with Economy	0.30	0.27	0.31	-0.07	-0.05	-0.00	0.04	-0.03	-0.03	0.02	0.04	0.13	-0.13	-0.07	0.10	-0.08	-0.16	-0.02	0.30	1.00					
(21) Trust in Others	-0.30	-0.32	-0.34	0.01	0.02	-0.03	-0.02	0.04	-0.00	-0.02	-0.03	-0.13	0.19	0.09	-0.06	0.07	0.14	0.02	-0.22	-0.38	1.00				
(22) Religious	0.01	0.03	0.03	-0.16	-0.08	0.18	-0.01	-0.02	0.07	-0.00	0.03	0.17	-0.02	-0.13	-0.03	-0.02	-0.03	-0.04	0.03	-0.04	0.01	1.00			
(23) Feel Safe in Dark	-0.17	-0.17	-0.19	0.21	0.00	-0.11	-0.08	-0.02	0.12	-0.00	-0.02	-0.10	0.10	0.14	-0.01	0.07	0.05	0.03	-0.15	-0.18	0.20	-0.05	1.00		
(24) Believe Traditions are Important	0.08	0.11	0.09	-0.06	-0.10	0.14	-0.02	-0.02	0.05	-0.02	0.01	0.08	-0.05	-0.09	-0.03	0.00	0.02	-0.02	0.03	0.01	-0.04	0.29	-0.05	1.00	
(25) Right-wing Ideology	0.07	0.11	0.08	0.03	-0.02	0.06	-0.04	0.00	0.04	-0.03	-0.01	-0.00	-0.00	-0.00	-0.04	0.06	-0.04	0.01	-0.05	-0.12	0.03	0.15	0.01	0.10	1.00

3.4.3 Regional predictors

To investigate the effect of regional factors on natives' attitudes toward immigrants we also utilize regional-level variables in our analysis. The regional indicators are aggregates of individual-level data derived from the EU-LFS. We merge the regional-level information from the EU-LFS with the individual-level dataset of the ESS to examine the impact that the share of the foreign population has on natives' anti-immigrant attitudes.

The EU-LFS provides information on the nationality and country of birth of each respondent. This information can be used to measure the foreign and foreign-born population in each region respectively. The foreign population consists of people who have a different nationality from that of their current country of residence, while the foreign-born population includes all those who have migrated from their country of birth to another host country. Both measures have pros and cons and therefore it is difficult to find a perfect measure to identify the size of the regional 'outgroup' population (Coenders, 2001). This is probably the reason that some previous studies in the literature have used the regional percentages of foreign-born (Markaki and Longhi, 2013; Weber, 2015), while other studies prefer to use the proportions of non-nationals in a region (Schlueter and Wagner, 2008; Bridges and Mateut, 2014).

Measures based on nationality are not totally comparable over regions of different countries, due to differences in citizenship regimes. By contrast, the percentage of foreign-born is comparable over regions, although it is still a very rough measure as it could cover, for example, nationals born abroad of native parents. Moreover, since it does not consider how long the foreign-born individuals have been living in the host country, the latter measure includes people who, although born abroad, are fully naturalized citizens of their country of residence and thus are likely to be viewed as truly belonging to the national community.

Another crucial difference between the two measures is that the share of foreign-born does not take into account the second-generation immigrants. Yet, the share of foreign nationals, can include those individuals who even if they were born in the host country still retain their home nationality. However, for individuals with dual or multiple nationalities who hold the nationality of the country of residence, the EU-LFS reports only that one. Otherwise, the first answer of the respondent is taken into account. Thus, the share of foreign nationals in our dataset cannot truly capture the second-generation immigrants either.

Table 3.6 summarizes by country the share of individuals in our sample who, according to the EU-LFS dataset, are classified as foreigners, based first on their country of birth, next on their nationality and finally on both criteria. Across all the countries of our sample, the number of people born abroad is much higher than those in the other two columns of the table. Apparently, those who are classified as foreigners according to their nationality are fewer because a high number of immigrants have been naturalized over the years. However, this column also includes those second-generation immigrants who still hold only their home nationality.

Table 3.6 Classification of individuals as foreigners

Country (ID)	Country of birth	Nationality	Both criteria
Austria (AT)	13.98	9.91	8.25
Belgium (BE)	12.07	8.30	6.70
Cyprus (CY)	16.77	14.39	13.33
Czech Republic (CZ)	2.38	0.88	0.84
Denmark (DK)	7.62	4.73	3.96
Finland (FI)	2.76	1.70	1.46
France (FR)	10.35	5.11	4.71
Germany (DE)	-	8.25	-
Greece (GR)	6.69	6.25	5.19
Hungary (HU)	1.72	0.57	0.53
Netherlands (NL)	10.15	3.72	3.03
Norway (NO)	9.00	4.92	4.55
Portugal (PT)	6.30	2.95	2.72
Sweden (SE)	15.19	5.28	4.88
Spain (ES)	11.36	9.57	9.14
United Kingdom (UK)	10.91	6.61	6.25

Notes: This table presents the share of individuals by country in our sample that, according to the EU-LFS, are classified as foreigners based on their country of birth, nationality and on both criteria.

For some countries such as Greece, where it is quite difficult for immigrants to acquire national citizenship, the overlap between the foreign nationals and foreign-born is quite high. On the contrary, for countries such as Sweden or Netherlands which are characterized by high levels of naturalization, the share of those born outside the country is about three times larger than the share of foreign nationals.

Consequently, for the reasons mentioned above, we choose to calculate the share of foreign population in each region on the basis of both individuals' nationality and country of birth.[15] By focusing on both criteria simultaneously we actually measure all persons born abroad who have not yet been naturalized, and thus are likely to be more salient in affecting current attitudes of natives toward immigration. However, we also use the separate shares of foreign nationals and foreign-born as alternative measures, the results of which are presented in the robustness analysis section that follows.

[15] Because the EU-LFS lacks information for Germany on individuals born abroad, we measure the share of foreign population in the German regions based only on individuals' nationality.

In a similar fashion to previous studies (Markaki and Longhi, 2013; Weber, 2015), apart from the total share of foreigners in a region we also compute the proportions of EU foreigners and those from countries outside the EU. However, attitudes toward immigrants might be affected by the composition of the non-EU foreigners in the country, due to significant cultural and socioeconomic status differences among them. Therefore, the main contribution of this study is that we additionally distinguish the non-EU foreigners into six broad groups of origin[16]: Other Europe, Middle East & North Africa, Other Africa, East & South Asia, North America & Australia and Latin America.[17]

In order to measure the direct effect of foreigners' skill level on natives' attitudes toward immigrants, the proportions of economically active foreigners with primary or lower secondary education and with tertiary education are included in our model. In addition, we include interaction terms between the share of foreigners in a region and the proportion of them with primary or lower secondary education as well as with tertiary education, in order to capture any potential moderating effects between the size of and the skill level of immigrant population. Finally, in line with previous literature (Rustenbach, 2010; Markaki and Longhi, 2013; Weber, 2015) we add controls for the unemployment rate at the regional level as well as a measure of regional economic performance, using the Gross Domestic Product (GDP) per capita of each region as a proxy for the latter. Table 3.7 provides summary statistics for regional-level variables and Table 3.8 presents the corresponding correlation matrix.

[16] We categorize the foreign population of our sample into seven broad groups of origin following Dohse and Gold (2014).

[17] For those few individuals in the EU-LFS dataset who are foreign nationals and born outside the host country but whose nationality does not match with their country of birth, we choose to categorize them into a group of origin according to the nationality they hold. We argue that a different nationality indicates that the individual has been naturalized in a country other than his/her country of birth or reveals some preference of the person to be identified as a member of that nation and its culture Therefore, we suggest that in this case, between the two measures, nationality would be a more appropriate measure of individual's origin.

Table 3.7 Regional level summary statistics

Regional Variable	Mean	Std. Dev.	Min	Max
% Total Foreigners	4.59	3.73	.225	25.20
% EU Foreigners	1.93	1.87	0	15.58
% Non-EU Foreigners	2.66	2.24	.035	12.74
% Other Europe	.973	1.29	0	10.51
% Middle East & Northern Africa	.475	.557	0	4.56
% Other Africa	.297	.521	0	3.69
% East & South Asia	.462	.637	0	4.99
% Northern America & Australia	.106	.161	0	1.82
% Latin America	.344	.991	0	8.41
% Foreigners with low qualifications	30.80	13.55	5.27	66.39
% Foreigners with high qualifications	27.45	9.53	5.22	60.77
% Unemployment	7.60	3.63	2.60	28.6
GDP per capita (000s)	28.07	11.66	5.54	77.57

Notes: This table presents summary statistics for regional level indicators and controls included in all different model specifications. The number of observations for all variables is N=97,070.

Table 3.8 Correlation matrix of regional level variables

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Economic Threat	1.00															
(2) Cultural Threat	0.62	1.00														
(3) Overall Threat	0.65	0.69	1.00													
(4) % Total Foreigners	-0.05	0.02	-0.02	1.00												
(5) % EU Nationals	-0.03	0.03	-0.02	0.89	1.00											
(6) % Non-EU Nationals	-0.06	0.02	-0.01	0.92	0.64	1.00										
(7) % Other Europe	-0.02	0.03	0.02	0.50	0.30	0.59	1.00									
(8) % Middle East & Northern Africa	-0.05	-0.03	-0.05	0.63	0.54	0.60	0.12	1.00								
(9) % Other Africa	-0.05	-0.01	0.00	0.35	0.17	0.44	-0.08	0.18	1.00							
(10) % East & South Asia	0.00	0.07	-0.02	0.65	0.69	0.50	0.13	0.26	0.19	1.00						
(11) % Northern America & Australia	-0.04	0.00	-0.04	0.43	0.38	0.40	0.13	0.07	0.34	0.56	1.00					
(12) % Latin America	-0.06	-0.02	-0.01	0.40	0.17	0.53	-0.11	0.37	0.29	-0.02	-0.01	1.00				
(13) % Non-Nationals with low qualifications	-0.00	0.03	0.07	0.22	0.03	0.35	0.29	0.31	0.25	-0.17	-0.24	0.26	1.00			
(14) % Non-Nationals with high qualifications	-0.07	-0.11	-0.14	-0.08	0.12	-0.24	-0.38	0.01	-0.07	0.19	0.23	-0.16	-0.55	1.00		
(15) % Unemployment	0.09	0.03	0.10	0.06	-0.05	0.14	0.01	0.16	0.06	-0.13	-0.19	0.28	0.29	-0.25	1.00	
(16) GDP per capita	-0.20	-0.21	-0.22	0.32	0.31	0.26	0.12	0.27	0.19	0.29	0.40	-0.06	-0.12	0.38	-0.44	1.00

3.4.4 Multilevel model

To analyze differences in natives' attitudes toward immigrants across regions we follow a multilevel approach similarly to previous studies (Rustenbach, 2010; Weber, 2015). Because each of our three dependent variables is an 11-category ordinal variable where the different categories are evenly spaced, we treat all of them as continuous. Thus, we estimate the following multilevel linear[18] regression model:

$$Y_{ijt} = X'_{ijt}\beta + Z'_{jt}\gamma + Fshare_{jt} \times Low_{jt}\delta + Fshare_{jt} \times High_{jt}\theta + u_j + \eta_t + \varepsilon_{ijt}$$

where i indicates respondents, j indicates regions within which respondents are nested and t indicates year. The dependent variable Y_{ijt} represents natives' attitudes toward immigrants. X' is a vector that contains variables summarizing the individual characteristics of the respondents and Z' is a vector which contains variables that summarize the regional indicators. The interaction terms $Fshare_{jt} \times Low_{jt}$ and $Fshare_{jt} \times High_{jt}$ capture any moderating effect between the total share of foreigners[19] in a region $Fshare_{jt}$ and the proportion of them with primary or lower secondary education Low_{jt} as well as with tertiary education $High_{jt}$, respectively. Region-specific effects u_j, year-specific effects η_t and unobserved individual effects ε_{ijt} are also included in this two-level mixed model. Regional random effects are used to adjust for correlations across observations within the same region. Year-specific effects are treated as fixed to control for unobserved effects of time.

We run a multilevel regression on each dependent variable. In each case, four different model specifications are estimated. The first model specification includes only the individual-level predictors. The following three contain, apart from the regional control variables,

[18] Additionally, we also checked the non-linear effect of the shares of foreigners on anti-immigrant attitudes but we did not find any significant evidence for that.

[19] We estimate the interaction effect only for the total share of foreigners, because the average cohort size of the rest of the foreign groups becomes too small to receive reliable results if we distinguish them according to their education.

respectively the total share of foreigners, the shares of EU and non-EUs and the share of foreigners by each specific group of origin in a region. Finally, all model specifications are estimated by using the -*mixed*- command in the statistical analysis software package Stata14.

Our work is similar to that conducted by Markaki and Longhi (2013), as both studies examine the impact of contextual factors, and more specifically characteristics of the immigrant population, on anti-immigrant attitudes in European regions. Moreover, we draw the data for our empirical analysis from the same sources (ESS and LFS) as described above. In addition, like these authors we estimate three different models corresponding to the three types of threat from immigration, the economic, the cultural and the overall. Finally, again following Markaki and Longhi (2013), we use individual-level information provided by the LFS to construct the regional indicators of immigrant characteristics.

Yet we differentiate ourselves from the authors in several ways. First, with respect to our sample, although we include in our analysis respondents from a smaller number of European regions than Markaki and Longhi (2013)[20], we use data from more recent rounds of the ESS. Second, in their study the authors decide to recode the ESS dependent variables which are measured on a scale from 0 to 10 into binary variables. However, we prefer not to alter the original variables in order not to lose the valuable information that they contain. Moreover, our study differs by distinguishing non-European immigrants living in a region into six different groups of origin as mentioned above, and this is our main empirical contribution to the literature. In addition, as discussed earlier in this section, we choose to measure the share of the foreign population in a region based simultaneously on both individuals' nationality and country of birth. This is contrary to Markaki and Longhi (2013) who use the share of foreign-born residents in their analysis. Furthermore, with respect to the modelling strategy, the authors follow a two-step modelling technique by first estimating the models at the

[20] Due to data unavailability for some countries in the LFS about the detailed origin of immigrants in a region.

individual level and then attempting to explain any regional differences in a second stage. Nevertheless, as previous studies have done (Rustenbach, 2010; Weber, 2015), we apply a multilevel model to analyze differences in natives' attitudes toward immigrants across regions. Finally, we extend our analysis by including an interaction term in our model to capture any moderating effect between the size and the skill level of immigrant population.

3.5 Empirical results

Tables 3.9 and 3.10 report the estimated effects of individual and regional variables on the three different measures of anti-immigrant attitudes, respectively. In what follows, we refer to the empirical findings of these models as the results of the economic, cultural and overall threat models respectively. The results of individual and regional predictors are presented separately in this section.

3.5.1 Individual characteristics

We introduce individual level factors as controls to allow focus on regional level determinants as discussed in the description of our methods. We present a summary of those findings here. Our individual level findings are consistent overall with what other studies have found (Mayda, 2006; O'Rourke and Sinnott, 2006; Rustenbach, 2010; Facchini and Mayda, 2012; Markaki and Longhi, 2013).

With respect to demographic features, males have a greater negative attitude towards immigrants than females do in relation to culture and quality of life overall, and a lesser anti-immigrant attitude than females with regard to a country's economy. Furthermore, older people have a more negative opinion on immigration than the youth population, although age does not present itself as a significant predictor in the economic threat model. In addition, we find that individuals with one or both parents born outside the country and those who belong to a minority ethnic group are more positive about immigration. Our final demographic

background variables reveal that respondents living in big cities exert less negative attitudes towards immigrants than those living in small cities or towns, while the results are opposite for the residents of rural areas.

As we expected, our results show that individuals educated to primary level have stronger anti-immigrant attitudes than those with a tertiary level of education. Regarding labour market characteristics, the empirical findings are mixed across the different models. The employment status of individuals does not appear to be statistically significant, neither in the cultural threat nor in the overall threat model. However, the respondents who are employed seem to believe that immigrants might be bad for the country's economy. Similarly, although being a union member currently or in the past is not an important predictor in the overall threat model, the variable has a negative and statistically significant effect on anti-immigrant attitudes in relation to economy and culture. Moreover, having a permanent job contract does not play an important role in explaining natives' attitudes toward immigrants. Nevertheless, managers and senior officials or people who shoulder supervisory responsibilities are clearly less negative toward immigrants, while the opposite is true for those in elementary occupations. Additionally, the respondents who have worked abroad for a period of more than six months during the last ten years are found to carry less negative attitudes toward immigrants across all the models.

With regard to economic indicators, our empirical results in all three models indicate that people who find it more difficult to cope with their present income and those who feel more dissatisfied with the current condition of the economy in their country have higher anti-immigrant attitudes. The results move in the opposite direction for those who are more religious, feel safe in the dark and believe that most people can be trusted. Finally, we find evidence of a positive association between opposition to immigration and the variable

measuring the importance of following traditions and customs. The same holds in case of an individual's political affiliation with the right.

Table 3.9 Individual determinants of anti-immigrant attitudes

Individual Variable	Economic threat	Cultural threat	Overall threat
Fixed-effects			
Demographic Features			
Male	-.153*** (.026)	.211*** (.036)	.104*** (.026)
Under 25 years old	-.005 (.045)	-.139*** (.033)	-.180*** (.041)
Over 60 years old	.007 (.029)	.281*** (.034)	.223*** (.034)
Big City Resident	-.168*** (.038)	-.170*** (.045)	-.136*** (.034)
Suburbs of Big CityResident	-.025 (.035)	-.063* (.034)	-.011 (.028)
Rural Area Resident	.145*** (.030)	.148*** (.034)	.143*** (.033)
Foreign Parent(s)	-.311*** (.055)	-.378*** (.055)	-.329*** (.062)
Belong to Minority	-.204*** (.075)	-.233*** (.078)	-.387*** (.109)
Qualification Level			
Primary Education	.428*** (.043)	.480*** (0.52)	.340*** (.045)
Tertiary Education	-.767*** (.028)	-.786*** (0.32)	-.622*** (.038)
Labour Market Characteristics			
Employed	.050* (.027)	.026*** (.032)	-.006 (.028)
Unemployed	.115** (.055)	-.047 (.063)	.014 (.053)
Supervisor Duties	-.107*** (.022)	-.110*** (.024)	-.079*** (.023)
Member of a Union	-.104*** (.023)	-.101*** (0.30)	-.038*** (.024)
Have Worked Abroad	-.247*** (.045)	-.125*** (.036)	-.155*** (.036)
Economic Indicators			
Difficult to Cope on Income	.211*** (.030)	.176*** (.038)	.216*** (.033)
Dissatisfied with Economy	.222*** (.007)	.138*** (.010)	.173*** (.008)
Social Indicators			
Trust in Others	-.174*** (.005)	-.189*** (.007)	-.183*** (.006)
Religious	-.024*** (.005)	-.023*** (.006)	-.031*** (.005)
Feel Safe in Dark	-.429*** (.034)	-.492*** (0.40)	-.525*** (.028)
Believe Traditions are Important	.199*** (.027)	.280** (.034)	.193*** (.030)
Political Affiliation			
Right Ideology	.128*** (.011)	.186*** (.014)	.156*** (.012)
Constant	4.93 (.105)	4.10 (.114)	5.03 (.095)
Random-effect Parameters			
Individual variance component	4.24 (.084)	4.69 (.122)	3.77 (.067)
Regional variance component	.184 (.027)	.423 (0.61)	.160 (.033)
Log-likelihood	-200,639	-206,282	-195,577
Observations	95,099	95,314	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for time fixed effects.

3.5.2 Regional determinants

The primary focus of this investigation is on the regional level. More specifically, the study focuses on those factors shaping the attitudes held by natives toward immigration that are conditioned by the origin and the skill level of immigrants living within the same region. Table 3.10 reports the empirical results of the regional determinants.

As the variance components at the bottom of the table show most of the variance of natives' anti-immigrant attitudes is explained by individual level factors. This is similar to previous studies (Rustenbach, 2010; Weber, 2015). For instance, in the third specification of our economic threat model, where we distinguish between different groups of immigrants, the intraclass correlation coefficient (ICC) is r=0.055 [0.247/(0.247+4.24)]. This indicates that 5.5 per cent of the total variance of the dependent variable is due to regional differences, which offers empirical support for applying a multilevel model. The ICC for the corresponding specification of the cultural threat and overall threat models is r=0.084 and r=0.042 respectively. This suggests that the observed variance of the dependent variable in these models can be attributed to differences at the regional level by 8.4 per cent and 4.2 per cent respectively. Therefore, while natives' attitudes toward immigrants can mainly be explained by individual characteristics, the regional factors seem to play an important role as well.

The first specification of each model includes the total share of foreigners in a region. At the regional level, the total share of foreigners does not present itself as a significant factor in any of our models. The second specification of each model distinguishes between EU and non-EU foreigners. In the economic threat model, the regional percentage of EU foreigners has a negative impact and is found to be statistically significant at the 5 per cent level. More precisely, a one percentage point increase in the percentage of EU foreigners decreases the

perceived economic threat by 0.59 percentage points.[21] The coefficient of this variable is almost fifty per cent larger and statistically significant at the 1 per cent level in the cultural threat model; while in the overall threat model the effect of the percentage of EU foreigners is a bit larger in magnitude than in the economic threat model and statistically significant at the 5 per cent level.

To the contrary, the proportion of non-EU foreigners in the economic threat model has a positive and statistically significant effect on anti-immigrant attitudes at the 5 per cent level. More specifically, a one percentage point increase in the percentage of non-EU foreigners in the region increases the perceived economic threat of immigration by 0.43 percentage points. The size effect of this variable is more than fifty per cent larger and statistically significant at the 5 per cent level for the perceived cultural threat of immigration. However, the number of non-EU foreigners in the region does not seem to increase the overall perceived threat of immigration at any level of significance.

Furthermore, the third model specification in the table separates non-EU foreigners into six broad groups of origin. This further distinction allows us to take into account any possible influence on attitudes derived from cultural or socioeconomic status differences between the native population and various groups of foreigners. Our empirical results indicate that proportions of non-EU foreigners by group of origin explain anti-immigrant attitudes in more detail and provide us with useful information. In particular, we find that natives living in regions with higher percentages of foreigners coming from European countries outside of the EU are more likely to believe that the cultural life in their country is undermined. Our estimated coefficient suggests that a one percentage point increase in the percentage of Europeans other than EU living in the region increases perceived cultural threat by 0.76 percentage points. This effect is statistically significant at the 1 per cent level. However, we

[21] If changing the independent variable by one unit, the dependent variable changes by γ (coefficient) units. Thus, a one percentage point increase in the regional percentage of EU foreigners decreases the perceived economic threat by 0.059 points in the 10-point scale or differently by 0.59 percentage points.

do not find any significant impact of this group of foreigners in the economic threat and overall threat models.

Additionally, our findings show that the presence of a larger-sized foreign population from the Middle East and North African countries in a given region increases the perceived economic threat of immigration. A one percentage point increase in the percentage of Middle East and North African foreigners increases anti-immigrant attitudes in the region with respect to economy by more than 2 percentage points. The results for the same foreign group in the cultural threat model are similar. Finally, the regional category Other African has a positive impact on anti-immigrant attitudes with respect to perceived undermining of a country's culture. The coefficient of this group is a bit smaller than that of Middle East and North African foreigners and it is statistically significant at the 10 per cent level. The Other African foreign group is the only one found to have a positive and statically significant effect at the 10 per cent level in the overall threat model. Consequently, the results confirm our expectation that cultural distance and different values increase anti-immigrant attitudes.

Our findings concerning the skill level of immigrants do not reveal any significant direct effect of immigrants with high-level qualifications on anti-immigrant attitudes. Nevertheless, the last specification of our first model shows that immigrants with low-level qualifications have a small but statistically significant effect on natives' attitudes towards immigrants with respect to the country's economy. However, the proportion of low-educated immigrants in a region does not seem to have any significant effect on anti-immigrant attitudes in the rest of the models.

With regard to our control variables, we find no evidence that regional GDP per capita is significantly associated with anti-immigrant attitudes. Our results regarding the unemployment rate at the regional level are mixed. Although we find that a higher unemployment rate in a region increases the perceived economic threat of immigration, our

results indicate that in the cultural threat model the regional unemployment rate has a negative and strongly statistically significant effect on attitudes toward immigrants. In the overall threat model, we do not find any significant effect of the regional rate of unemployment.

Table 3.10 Regional determinants of anti-immigrant attitudes

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreigners	.000 (.014)			.004 (.018)			-.013 (.014)		
% EU Foreigners		-.059** (.025)	-.056* (.031)		-.088*** (.032)	-.081*** (.031)		-.065** (.027)	-.061** (.026)
% Non-EU Foreigners		.043** (.019)			.066*** (.025)			.022 (.023)	
% Other Europe			.042 (.029)			.076*** (.025)			.030 (.025)
% Middle East & Northern Africa			.212** (.091)			.242** (.099)			.134 (.087)
% Other Africa			.010 (.080)			.183* (.109)			.151* (.084)
% East & South Asia			-.060 (.065)			-.032 (.077)			-.073 (.069)
% Northern America & Australia			.076 (.206)			.279 (.224)			.090 (.195)
% Latin America			.010 (.042)			-.050 (.056)			-.046 (.053)
% Foreigners with low qualifications	-.004 (.003)	-.004 (.003)	-.006* (.003)	-.001 (.003)	-.002 (.002)	-.003 (.003)	.000 (.002)	-.000 (.002)	-.001 (.003)
% Foreigners with high qualifications	-.002 (.003)	-.001 (.003)	-.001 (.003)	-.002 (.003)	-.001 (.003)	-.001 (.003)	.001 (.002)	.002 (.002)	.002 (.002)
% Unemployment	.034*** (.010)	.034*** (.009)	.032*** (.009)	-.024*** (.007)	-.024*** (.007)	-.025*** (.007)	-.010 (.008)	-.010 (.008)	-.011 (.007)
GDP per capita (000s)	.001 (.006)	.002 (.006)	.000 (.007)	-.004 (.007)	-.002 (.007)	-.008 (.008)	-.001 (.005)	-.001 (.005)	-.004 (.006)
Constant	4.86 (.254)	4.81 (.263)	4.86 (.253)	4.44 (.224)	4.35 (.224)	4.45 (.242)	5.16 (.170)	5.12 (.178)	5.18 (.189)
Random-effect parameters									
Individual var. component	4.24 (.083)	4.24 (.083)	4.24 (.083)	4.69 (.122)	4.69 (.122)	4.68 (.122)	3.77 (.068)	3.76 (.068)	3.76 (.068)
Region var. component	.206 (.039)	.240 (.048)	.247 (.056)	.394 (.057)	.429 (.064)	.430 (.068)	.154 (.034)	.168 (.035)	.165 (.036)
Log-likelihood	-200,587	-200,578	-200,566	-206,259	-206,242	-206,224	-195,569	-195,562	-195,548
Observations	95,099	95,099	95,099	95,314	95,314	95,314	95,260	95,260	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Finally, Table 3.11 presents the moderating effects between the size and the skill level of the immigrant population for each of our three dependent variables. As already mentioned above, we estimate an interaction effect only for the total share of foreigners in a region because the average cohort size of the rest of the foreign groups becomes too small to allow us a further separation. Our results do not reveal a significant moderating effect between the share of foreigners in a region and the proportion of them with tertiary education in any of our models. However, we find that the proportion of low-educated immigrants positively moderates the effect of the total share of foreigners on natives' attitudes toward immigrants with respect to the country's economy, at the 1 percent level of significance.

In particular, our results indicate that when the proportion of low-skilled immigrants in a region is low (one standard deviation below the mean) increasing the total share of foreigners from one standard deviation below the mean to one standard deviation above the mean decreases perceived economic threat by 5.3 per cent. On the contrary, when the proportion of low-skilled immigrants in a region is high (one standard deviation above the mean) our results indicate that increasing the total share of foreigners from one standard deviation below the mean to one standard deviation above the mean increases perceived economic threat by 4.0 percent.

Similarly, in the cultural threat model we find a significant moderating effect, at the 5 per cent level, between the total share of foreigners in a region and the proportion of them with primary or lower secondary education. More specifically, our results show that when the proportion of low-skilled immigrants in a region is low (one standard deviation below the mean) increasing the total share of foreigners from one standard deviation below the mean to one standard deviation above the mean decreases perceived cultural threat by 2.7 percent. On the other hand, when the proportion of low-skilled immigrants in a region is high (one standard deviation above the mean) our results indicate that increasing the total share of

foreigners from one standard deviation below the mean to one standard deviation above the mean increases perceived cultural threat by 2.9 per cent.

Table 3.11 Interaction effect between immigrant values and the skill level of immigrants

Variable	Economic threat (1)	Cultural threat (1)	Overall threat (1)
Fixed-effects			
% Total Foreigners	-.086***	-.023	-.014
	(.032)	(.039)	(.027)
% Foreigners with low qualifications	-.014***	-.006	-.001
	(.004)	(.004)	(.004)
% Foreigners with high qualifications	-.002	.001	.004
	(.003)	(.004)	(.003)
% Total Foreigners X % Foreigners with low qualifications	.002***	.001**	.000
	(.001)	(.000)	(.000)
% Total Foreigners X % Foreigners with high qualifications	.000	-.000	-.000
	(.000)	(.000)	(.000)
% Unemployment	.031***	-.026***	-.011
	(.008)	(.007)	(.008)
GDP per capita (000s)	.002	-.003	-.001
	(.006)	(.008)	(.005)
Constant	5.15	4.49	5.13
	(.245)	(.300)	(.220)
Random-effect parameters			
Individual var. component	4.24	4.69	3.77
	(.083)	(.121)	(.068)
Region var. component	.206	.410	.160
	(.040)	(.058)	(.034)
Log-likelihood	-200,566	-206,248	-195,565
Observations	95,099	95,314	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Figures 3.1 and 3.2 present the predictive margins with a 95 percent confidence interval for the total share of foreigners between low and high proportions of immigrants with primary or

lower secondary education, for the economic threat and cultural threat models respectively. The graphs illustrate that the positive effect of the total share of foreigners on anti-immigrant attitudes, with respect to the country's economy and culture, is stronger in regions where the percentage of low-educated immigrants is higher. However, we do not find any significant moderating effect between the size and the skill level of the immigrant population in the overall threat model.

Figure 3.1 Margins plot of total share of foreigners and proportion of low-educated immigrants (Economic threat)

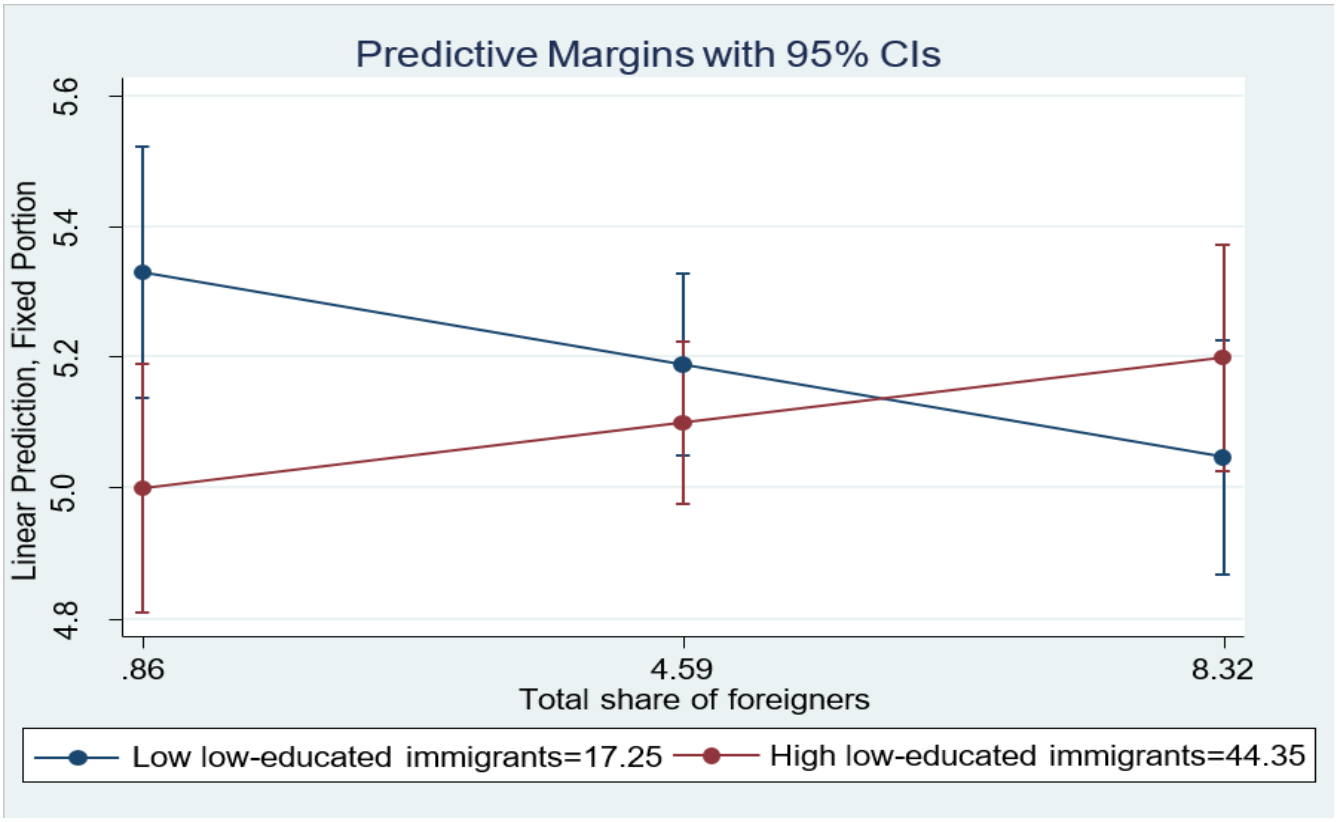
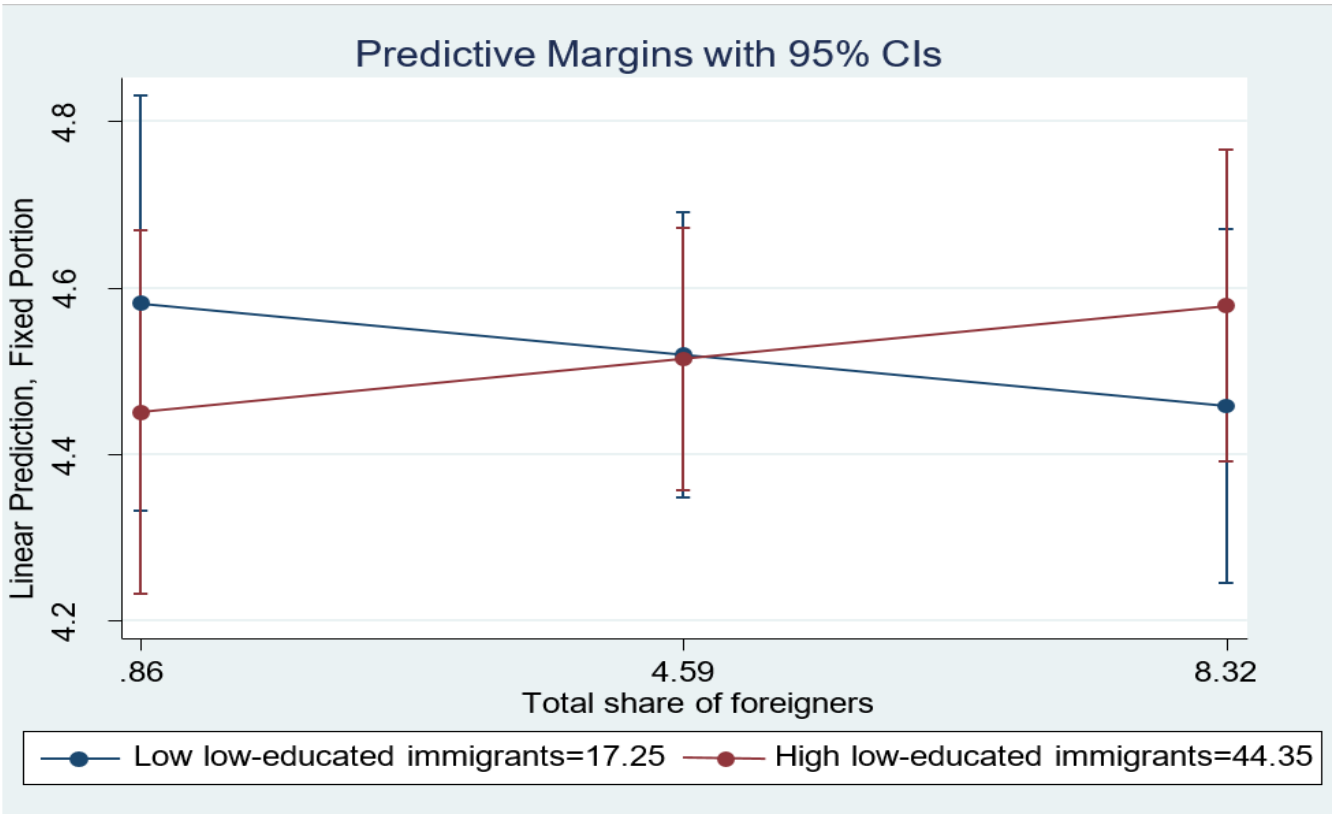


Figure 3.2 Margins plot of total share of foreigners and proportion of low-educated immigrants (Cultural threat)



3.5.3 Robustness analysis

To further evaluate the robustness of our main results we also conduct some sensitivity tests. First, we estimate alternative model specifications by including additional control variables. In our model we introduce generalized social trust and institutional trust at the regional level as proxies of informal and formal institutions in regions respectively. Each variable is used in a separate specification and by replacing the variable of GDP per capita, which controls for the regional economic performance, due to multicollinearity. Tables A1 and A2 in the Appendix present the results with alternative control variables. Our estimates do not change much and remain significant after the inclusion of alternative controls.

In addition, following Bridges and Mateut (2014) we exclude from our sample the respondents of the regions with the most and least negative attitude toward immigrants. More specifically, we drop from our data set the regions of Central Greece (GR2) and Oslo and

Akershus (NO1) in the economic threat model, the regions of Central Greece (GR2) and Helsinki, South Finland and Aland (FI1820) in the cultural threat model, and finally, the regions of Central Greece (GR2) and East Sweden (SE1) in the overall threat model, as they appear to be the most anti-immigration and pro-immigration regions respectively. We find that our results do not alter much when we exclude from our analysis the respondents of these regions. Table A3 in the Appendix reports these results.

Finally, as mentioned in the data and methods section, we additionally measure the regional foreign population, first based only on individuals' nationality and second based only on their country of birth. Comparing with our initial measure of foreign population, the share of foreign nationals also includes those individuals who, even if they were born in the host country, still hold only their home nationality. Therefore, the measure based on individuals' nationality, even if not perfect, could capture some aspect of the second-generation immigrants that might affect anti-immigrant attitudes. As Table A4 in the Appendix shows, the results of this measure, although slightly less strong in magnitude in some cases, are quite similar to those presented before. In addition, Table A5 in the Appendix reports the coefficient estimates based on individuals' country of birth.[22] Although the size of some of the coefficients and their statistical significance differ a bit from those of Table 3.9, the results based on this measure do not change much either.

3.6 Discussion and Conclusion

The purpose of this study is to investigate factors affecting national attitudes toward immigrants based on the characteristics of the immigrants living in the region. To do so, we combine data from the European Labour Force Survey (EU-LFS) and the European Social

[22] Our empirical findings partly confirm those of Markaki and Longhi (2013), who use the same measure and find that a higher proportion of non-EU immigrants in a region increases natives' anti-immigrant attitudes.

Survey (ESS) over the period 2004-2012, from 78 regions of 16 European countries. The theories suggest several explanations for natives' attitudes toward immigrants. First, economic competition theory contends that anti-immigrant attitudes increase when economic conditions decline. Second, conflict theory proposes cultural distance and different values between immigrants and nationals generate more negative attitudes toward immigrants. Third, contact theory competes with conflict theory in maintaining that more interaction with immigrants who have different values causes nationals to have less negative attitudes toward them. Using these three theories, we then develop models to explore key factors that shape attitudes toward immigrants.

Our empirical results show that the total share of foreigners is not a significant predictor in any of our models. These findings are consistent with the empirical studies of Rustenbach (2010) and Karreth *et al*. (2015). Neither study found evidence that the regional proportion of immigrants has an impact on anti-immigrant attitudes. However, the results of previous research are mixed. Some studies show that a larger population of immigrants in the region increases perceived threats (Schlueter and Wagner 2008; Markaki and Longhi 2013) in contrast to others which find that the perceived threat from immigrants decreases with the percentage of immigrants present at regional level (Weber 2015).

Moreover, we find that a higher regional percentage of EU foreigners decreases the natives' anti-immigrant attitudes in both economic and cultural threat models. As the EU foreigners mainly represent the highly-educated immigrants in a region, these findings could be explained by economic theory which suggests that natives might favour highly-skilled immigration that benefits the country's economy. However, we find that the proportion of highly-skilled immigrants in a region has no significant effect on anti-immigrant attitudes. Thus, some other plausible economic explanations of these findings could be that there are lower unemployment rates among EU immigrants or that they are likely to depend less on the

welfare state. In addition, since the EU foreigners have values more similar to those of natives, allowing them to integrate better into the social life of host communities, our findings can also be supported by conflict theory.

Furthermore, the results of our analysis support our assumption that where immigrants to a region come from outside the EU both the perceived economic and cultural threat from immigration increase, with the latter threat perceived to be greater. These results are consistent with the findings of Markaki and Longhi (2013). Moreover, our results indicate that greater cultural distance between nationals and immigrants living in the region produces stronger negative attitudes toward immigrants. Perceptions of cultural distance or difference in common values may derive from observed physical difference or from more ideological and behavioral differences, including religious beliefs and practices. In particular, our findings show that natives living in regions with higher percentages of foreigners coming from European countries outside of the EU are more likely to believe that the cultural life in their country is undermined. Additionally, we find that a larger-sized foreign population from the Middle East and North African countries increases both the perceived economic and cultural threat from immigration. Considering that the Middle East and North African foreign group geographically represents the Muslim communities, these findings are similar to those of Green et al. (2010) who find that a high proportion of Muslim immigrants in a Swiss municipality increases the perceived threat from immigration. Finally, the foreign group Other African has a positive impact on anti-immigrant attitudes with respect to perceived undermining of a country's culture but also on overall life satisfaction.

Regarding the skill level of immigrants, our findings do not reveal any significant direct effect of immigrants with high-level qualifications on anti-immigrant attitudes. Similarly, in his empirical analysis about Western Europe, Weber (2015) finds that the percentage of highly educated immigrants at the national level has no significant impact on

the perceived threat of immigration. However, we find some evidence that immigrants with low-level qualifications have a small but statistically significant effect on natives' attitudes towards immigrants with respect to country's economy. Therefore, we confirm the results of Markaki and Longhi (2013) who also find that a higher proportion of immigrants with low education decreases the perceived economic threat of immigration in European regions. A plausible explanation for this finding could be that immigrants with low qualifications might be perceived by the natives more as a cheap labour force rather than as a substitute for their own low-skilled segment.

Nevertheless, the proportion of low-educated immigrants in a region does not seem to have any significant effect on anti-immigrant attitudes in the rest of the models. Thus, our findings are partly consistent with those of Schneider (2008) who found that, in European countries, a higher percentage of low-educated immigrants does not increase the negative attitudes of natives towards immigration. Finally, our empirical results reveal some moderating effects between the size and the skill level of the immigrant population. More specifically, we find that the positive effect of the total share of foreigners on natives' attitudes toward immigrants, with respect to the country's economy and culture, is stronger in regions where the percentage of low-educated immigrants is higher.

An important insight from our study emerges in the finding that the origin of immigrants living in a European region appears to be key in natives' attitudes toward immigration. A higher proportion of EU foreigners in a region decreases anti-immigrant attitudes while a larger non-EU foreign population is found to increase them. By looking at the proportion of non-EU foreigners in a region in a finer grain, where we are able to separate them according to region of origin, we discern a hierarchy in terms of the preferability of foreigners from one region relative to those of another region. We find Middle East and North African concentrations of non-EU foreigners, which geographically represent the Muslim

communities, to elicit the most negative attitudes toward immigrants. This suggests that a greater degree of perceived cultural distance and difference proves decisive in shaping anti-immigrant attitudes. In other words, Muslims are perceived as more divergent in values from European attitude-holders than are Asians or Latin Americans. The more that the values of the immigrants present in a region diverge from those of the nationals of that region, the more an immigrant threat is perceived and this produces a stronger anti-immigrant attitude.

Of course, this study is not without limitations. First, as described before in the data and methods section, using the EU-LFS data we are not able to actually measure the second-generation immigrants, neither by the share of foreign-born nor by the share of foreign nationals in a region. However, many second-generation immigrants are not fully integrated into the local communities and might be discriminated against although they have been naturalized. Moreover, our study examines anti-immigrant attitudes without focusing on a specific segment of the native population. Thus, an interesting extension of this work will be to examine cross-level interaction effects and investigate how origin or skill level of immigrants interacts with the education level, employment status or political affiliation of natives. Finally, following the main results of this study, future work may examine degrees of cultural distance and identify the factors that comprise cultural differences. It may be interesting to know if it is ideology, traditions, experiences, religious practice or other traits that prove most important in the mind of the attitude holder who perceives cultural distance. More in-depth knowledge of the immigrant traits that drive anti-immigrant attitudes could help to shape integration policies and strategies.

Appendix to Chapter 3

Table A1 Regional determinants of anti-immigrant attitudes – Generalized social trust as an alternative control

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreigners	.002 (.013)			.003 (.017)			-.013 (.013)		
% EU Foreigners		-.058** (.028)	-.055* (.030)		-.088*** (.031)	-.084*** (.030)		-.063** (.025)	-.062** (.024)
% Non-EU Foreigners		.045** (.018)			.065*** (.026)			.021 (.023)	
% Other Europe			.042 (.029)			.076*** (.025)			.029 (.026)
% Middle East & Northern Africa			.212** (.091)			.235** (.099)			.126 (.088)
% Other Africa			.011 (.078)			.170* (.102)			.136* (.079)
% East & South Asia			-.058 (.064)			-.026 (.079)			-.062 (.069)
% Northern America & Australia			.076 (.204)			.261 (.222)			.075 (.189)
% Latin America			.010 (.041)			-.049 (.056)			-.047 (.051)
% Foreigners with low qualifications	-.004 (.003)	-.005 (.003)	-.006* (.003)	-.001 (.003)	-.002 (.003)	-.003 (.003)	.000 (.002)	-.001 (.002)	-.002 (.003)
% Foreigners with high qualifications	-.002 (.003)	-.001 (.003)	-.001 (.003)	-.002 (.003)	-.001 (.003)	-.001 (.003)	.001 (.002)	.002 (.002)	.002 (.002)
% Unemployment	.034*** (.009)	.033*** (.009)	.032*** (.009)	-.022*** (.007)	-.023*** (.006)	-.023*** (.006)	-.010 (.008)	-.010 (.007)	-.010 (.007)
Generalized Social Trust	-.026 (.061)	-.029 (.063)	-.018 (.062)	-.084 (.060)	-.079 (.062)	-.072 (.062)	-.122** (.053)	-.119** (.055)	-.111** (.054)
Constant	5.02 (.351)	4.99 (.360)	4.96 (.347)	4.74 (.357)	4.69 (.358)	4.60 (.365)	5.73 (.298)	5.70 (.307)	5.63 (.300)
Random-effect parameters									
Individual var. component	4.24 (.083)	4.24 (.083)	4.24 (.083)	4.69 (.122)	4.69 (.122)	4.68 (.122)	3.77 (.068)	3.76 (.068)	3.76 (.068)
Region var. component	.215 (.042)	.252 (.051)	.252 (.057)	.385 (.053)	.420 (.060)	.430 (.068)	.143 (.029)	.157 (.030)	.155 (.032)
Log-likelihood	-200,587	-200,578	-200,565	-206,257	-206,240	-206,223	-195,560	-195,554	-195,542
Observations	95,099	95,099	95,099	95,314	95,314	95,314	95,260	95,260	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Table A2 Regional determinants of anti-immigrant attitudes – Institutional trust as an alternative control

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreigners	.002 (.013)			.002 (.017)			-.013 (.012)		
% EU Foreigners		-.053** (.027)	-.049* (.029)		-.083*** (.031)	-.079*** (.030)		-.056** (.024)	-.054** (.023)
% Non-EU Foreigners		.042** (.018)			.059** (.024)			.016 (.020)	
% Other Europe			.038 (.028)			.070*** (.025)			.025 (.021)
% Middle East & Northern Africa			.198** (.089)			.219** (.095)			.111 (.084)
% Other Africa			.012 (.077)			.167 (.101)			.133* (.079)
% East & South Asia			-.067 (.065)			-.037 (.077)			-.078 (.068)
% Northern America & Australia			.073 (.209)			.263 (.229)			.078 (.194)
% Latin America			.015 (.043)			-.048 (.055)			-.047 (.052)
% Foreigners with low qualifications	-.003 (.003)	-.005 (.003)	-.005 (.003)	-.000 (.002)	-.001 (.002)	-.002 (.003)	.001 (.002)	.000 (.002)	-.001 (.003)
% Foreigners with high qualifications	-.001 (.003)	.000 (.003)	.000 (.003)	-.001 (.003)	.000 (.003)	.000 (.003)	.003 (.002)	.004 (.002)	.004 (.002)
% Unemployment	.028*** (.009)	.029*** (.009)	.027*** (.008)	-.028*** (.007)	-.028*** (.006)	-.027*** (.006)	-.016** (.008)	-.017** (.007)	-.016** (.007)
Institutional Trust	-.178*** (.062)	-.171*** (.062)	-.166*** (.059)	-.174*** (.061)	-.157*** (.061)	-.150*** (.056)	-.219*** (.037)	-.213*** (.038)	-.209*** (.038)
Constant	5.81 (.348)	5.77 (.343)	5.74 (.339)	5.24 (.347)	5.13 (.341)	5.04 (.328)	6.28 (.196)	5.12 (.178)	6.17 (.211)
Random-effect parameters									
Individual var. component	4.24 (.083)	4.24 (.083)	4.24 (.083)	4.69 (.122)	4.68 (.122)	4.68 (.122)	3.76 (.068)	3.76 (.068)	3.76 (.068)
Region var. component	.243 (.052)	.269 (.058)	.281 (.068)	.364 (.051)	.397 (.059)	.406 (.068)	.149 (.028)	.160 (.029)	.158 (.032)
Log-likelihood	-200,570	-200,562	-200,551	-206,246	-206,231	-206,215	-195,538	-195,533	-195,521
Observations	95,099	95,099	95,099	95,314	95,314	95,314	95,260	95,260	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Table A3 Regional determinants of anti-immigrant attitudes – Excluding outlier regions

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreigners	.000 (.014)			.003 (.018)			-.013 (.014)		
% EU Foreigners		-.059** (.029)	-.056* (.031)		-.088*** (.032)	-.081*** (.031)		-.062** (.027)	-.060** (.026)
% Non-EU Foreigners		.043** (.019)			.064** (.026)			.019 (.022)	
% Other Europe			.039 (.029)			.074*** (.025)			.025 (.024)
% Middle East & Northern Africa			.217** (.091)			.243** (.099)			.144* (.084)
% Other Africa			.012 (.080)			.177* (.108)			.149* (.082)
% East & South Asia			-.062 (.064)			-.031 (.078)			-.073 (.070)
% Northern America & Australia			.080 (.208)			.268 (.223)			.077 (.192)
% Latin America			.012 (.042)			-.051 (.055)			-.048 (.051)
% Foreigners with low qualifications	-.004 (.003)	-.005 (.003)	-.006* (.003)	-.001 (.003)	-.002 (.002)	-.003 (.003)	.000 (.002)	-.000 (.002)	-.001 (.003)
% Foreigners with high qualifications	-.002 (.003)	-.001 (.003)	-.001 (.003)	-.002 (.003)	-.001 (.003)	-.001 (.003)	.001 (.002)	.002 (.002)	.003 (.002)
% Unemployment	.034*** (.010)	.034*** (.009)	.032*** (.009)	-.023*** (.007)	-.023*** (.007)	-.024*** (.007)	-.010 (.008)	-.010 (.008)	-.011 (.007)
GDP per capita (000s)	.001 (.007)	.002 (.007)	.000 (.008)	-.002 (.007)	-.000 (.007)	-.005 (.008)	.001 (.005)	.002 (.005)	-.001 (.006)
Constant	4.85 (.268)	4.80 (.277)	4.87 (.272)	4.38 (.219)	4.30 (.220)	4.40 (.238)	5.10 (.159)	5.06 (.167)	5.12 (.179)
Random-effect parameters									
Individual var. component	4.24 (.083)	4.24 (.083)	4.24 (.083)	4.71 (.123)	4.70 (.123)	4.70 (.123)	3.76 (.068)	3.76 (.068)	3.76 (.068)
Region var. component	.209 (.040)	.244 (.049)	.254 (.058)	.363 (.057)	.399 (.065)	.403 (.069)	.128 (.029)	.140 (.029)	.137 (.030)
Log-likelihood	-199,332	-199,324	-199,310	-203,854	-203,837	-206,224	-192,879	-192,873	-192,858
Observations	93,248	93,248	93,248	90,599	90,599	90,599	92,264	92,264	92,264

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Table A4 Regional determinants of anti-immigrant attitudes – Shares measured in terms of Nationality

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreigners	.004			.004			-.011		
	(.013)			(.017)			(.013)		
% EU Nationals		-.046*	-.045*		-.081***	-.076***		-.057**	-.053**
		(.025)	(.026)		(.029)	(.028)		(.025)	(.024)
% Non-EU Nationals		.043**			.066***			.023	
		(.019)			(.025)			(.022)	
% Other Europe			.045			.078***			.037
			(.028)			(.024)			(.024)
% Middle East & Northern Africa			.199**			.222**			.115
			(.090)			(.090)			(.081)
% Other Africa			.016			.177*			.148*
			(.070)			(.099)			(.084)
% East & South Asia			-.073			-.039			-.088
			(.063)			(.076)			(.070)
% Northern America & Australia			.065			.258			.076
			(.194)			(.209)			(.184)
% Latin America			.005			-.049			-.046
			(.040)			(.055)			(.050)
% Foreigners with low qualifications	-.005	-.005*	-.006**	-.001	-.002	-.003	.000	-.000	-.001
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.002)	(.002)	(.003)
% Foreigners with high qualifications	-.002	-.001	-.006	-.002	-.001	-.001	.001	.002	.002
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.002)	(.002)	(.002)
% Unemployment	.034***	.033***	.032***	-.024***	-.024***	-.025***	-.010	-.010	-.010
	(.009)	(.009)	(.009)	(.007)	(.006)	(.007)	(.008)	(.008)	(.007)
GDP per capita (000s)	.000	.001	.000	-.004	-.002	-.008	-.001	-.001	-.004
	(.006)	(.006)	(.006)	(.007)	(.007)	(.008)	(.005)	(.005)	(.006)
Constant	4.88	4.83	4.89	4.45	4.35	4.46	5.17	5.12	5.17
	(.257)	(.265)	(.252)	(.227)	(.226)	(.247)	(.174)	(.182)	(.195)
Random-effect parameters									
Individual var. component	4.24	4.24	4.24	4.69	4.69	4.68	3.77	3.76	3.76
	(.083)	(.083)	(.083)	(.122)	(.121)	(.122)	(.068)	(.068)	(.068)
Region var. component	.207	.241	.244	.392	.425	.422	.156	.171	.164
	(.039)	(.048)	(.056)	(.057)	(.063)	(.067)	(.034)	(.035)	(.035)
Log-likelihood	-200,586	-200,578	-200,564	-206,259	-206,241	-206,223	-195,570	-195,563	-195,548
Observations	95,099	95,099	95,099	95,314	95,314	95,314	95,260	95,260	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects.

Table A5 Regional determinants of anti-immigrant attitudes – Shares measured in terms of Country of birth

Regional Variable	Economic threat (1)	Economic threat (2)	Economic threat (3)	Cultural threat (1)	Cultural threat (2)	Cultural threat (3)	Overall threat (1)	Overall threat (2)	Overall threat (3)
Fixed-effects									
% Total Foreign-born	.004			.007			-.007		
	(.010)			(.015)			(.011)		
% EU Foreign-born		-.058*	-.050		-.090***	-.079***		-.064**	-.060**
		(.030)	(.031)		(.031)	(.031)		(.026)	(.026)
% Non-EU Foreign-born		.034**			.052***			.019	
		(.014)			(.020)			(.016)	
% Other Europe			.035			.059**			.027
			(.029)			(.025)			(.022)
% Middle East & Northern Africa			.086*			.126**			.049
			(.046)			(.052)			(.038)
% Other Africa			-.025			.088*			.099**
			(.065)			(.070)			(.049)
% East & South Asia			-.020			-.025			-.037
			(.043)			(.063)			(.059)
% Northern America & Australia			.267*			.381**			.194
			(.160)			(.186)			(.190)
% Latin America			.025			-.024			-.046
			(.031)			(.060)			(.029)
% Foreigners with low qualifications	-.003	-.003	-.006**	.001	.000	-.001	.001	.003	-.000
	(.004)	(.004)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
% Foreigners with high qualifications	-.002	-.001	-.006	-.001	-.001	-.002	.003	.003	.002
	(.003)	(.003)	(.003)	(.004)	(.004)	(.004)	(.003)	(.003)	(.002)
% Unemployment	.033***	.031***	.032***	-.025***	-.027***	-.026***	-.010	-.011	-.010
	(.009)	(.009)	(.009)	(.007)	(.006)	(.006)	(.008)	(.008)	(.007)
GDP per capita (000s)	.000	.001	.000	-.005	-.005	-.010	-.002	-.002	-.005
	(.006)	(.006)	(.006)	(.008)	(.007)	(.008)	(.006)	(.006)	(.007)
Constant	4.82	4.88	4.89	4.35	4.43	4.52	5.09	5.14	5.20
	(.262)	(.274)	(.252)	(.241)	(.238)	(.280)	(.176)	(.180)	(.203)
Random-effect parameters									
Individual var. component	4.24	4.24	4.24	4.69	4.69	4.68	3.77	3.76	3.76
	(.083)	(.083)	(.083)	(.122)	(.122)	(.122)	(.068)	(.068)	(.068)
Region var. component	.220	.247	.244	.401	.419	.424	.153	.165	.158
	(.041)	(.049)	(.056)	(.056)	(.059)	(.062)	(.032)	(.031)	(.034)
Log-likelihood	-200,589	-200,581	-200,564	-206,260	-206,242	-206,224	-195,569	-195,560	-195,547
Observations	95,099	95,099	95,099	95,314	95,314	95,314	95,260	95,260	95,260

Notes: The table reports coefficient estimates for multilevel mixed linear regressions. Robust standard errors, clustered by region, are presented in parentheses; *p ≤ 0.10, **p ≤ 0 .05, ***p ≤ 0 .01. Our estimations use both design and population size weights provided by the ESS. All regressions in this table control for individual characteristics and time fixed effects. For German regions only, due to data unavailability, the shares of foreign population are measured based on individuals' nationality.

Chapter 4
Immigration and electoral support for the radical right: Evidence from Dutch municipalities

Abstract

The purpose of this study is to empirically examine the impact of international immigration on political outcomes in the Netherlands. More precisely, we investigate how the stock of immigrants and the immigrant inflows to Dutch municipalities affect electoral support for the country's radical right parties. Thus, the current study complements previous empirical research on individual attitudes towards immigrants and contributes to the growing literature on immigration and political preferences by providing empirical evidence from the Netherlands. Our dataset consists of 338 Dutch municipalities and covers the four national elections that took place in the country during the decade 2003-2012. The results of this study indicate that, although an increase in the share of foreign-born immigrants within a municipality does not increase the vote share of the radical right, increases in immigrant inflows have a positive and statistically significant effect on voting in support of radical right parties. Our empirical analysis leads to several other findings, including that the share of second-generation immigrants negatively affects anti-immigrant votes, while, in line with previous studies, we find that cultural distance between natives and immigrants is a significant determinant of the electoral support for the radical right.

4.1 Introduction

Throughout Europe in recent years, a considerable number of 'extreme-right' parties, as they are most often referred to, have been gaining popularity and influencing the formation of public opinion. In France, the far-right '*Front National*' party of Marine Le Pen scored its highest ever percentage of votes when it won through to the second round of the presidential elections in the spring of 2017. Shortly before that, at the national elections taking place in the Netherlands, the populist radical-right '*Party for Freedom*' of Geert Wilders came second, increasing its previous number of seats in the parliament. Only a few months earlier, in summer of 2016, the right-wing populist '*UK Independence Party*' had managed to play a major role in the 'Brexit' referendum by promoting itself as a nativist nationalist political movement.

In Italy, the right-wing anti-immigrant parties '*North League*' and '*Brothers of Italy*' have been among the big winners in the recent general election of 2018, gaining significant political power in parliament. The increasing popularity of the xenophobic party '*Alternative for Germany*' in the last German federal elections of 2017 is a further typical example of the radical right's electoral success in Western Europe. In addition, in the same year, the right-wing populist '*Freedom Party of Austria*' finished third in the Austrian legislative elections, only one parliamentary seat behind the party who came second. In Scandinavia three out of four countries, Denmark, Finland and Norway, have formed coalition governments with the support of right-wing populist parties, whilst in Sweden the nationalist party '*Sweden Democrats*' impressively jumped to third place at the last general election in 2014.

The summary of electoral outcomes presented above highlights that the success of radical right parties is an ongoing reality in the political landscape of Europe. One way to explain this growing phenomenon is to assume that the high concentration of foreigners and the rising immigrant inflows to European countries in recent years have led to electoral

support for parties with strong anti-immigrant political agendas (Lubbers *et al*., 2002; Golder, 2003; Van der Brug and Fennema; 2009). Additionally, others might argue that increasing inequality in Western democracies and the economic recession that followed the recent financial crisis in many European countries have tended to sharpen the existing negative attitudes toward foreigners. They may also have acted to enlarge the perceived threat of immigration because of the significant impact of migrants on the labour market and welfare state (Card, 2001; Borjas, 2003; Facchini and Mayda, 2009; Dustmann *et al*., 2010). A more complex reasoning attempts to link the increasing popularity of radical right parties with a general disaffection from the traditional political system or with the rising trend of Euroscepticism and ethnic exclusion in the continent that stems from intensive globalization (Norris, 2005; Werts *et al*., 2013, Hatton, 2016).

The purpose of this study is to empirically examine the impact of international immigration on political outcomes in the Netherlands. More precisely, we investigate how the stock of immigrants and the immigrant inflows to Dutch municipalities affect electoral support for the radical right parties in the country. Thus, our work contributes to the growing literature on immigration and political preferences by providing empirical evidence from the Netherlands. Additionally, in this study we differentiate ourselves from previous empirical research by exploring and comparing the short-term effect of immigration (immigrant inflows) and its longer-term impact (immigrant stock) on the vote share of the radical right. Finally, to the best of our knowledge, the current work is the only empirical study of the related literature that distinguishes first- and second-generation immigrants. Our dataset consists of 338 Dutch municipalities and covers the four national elections that took place in the country during the decade 2003-2012.

The results of this study indicate that, although an increase in the share of foreign-born immigrants within a municipality does not increase the vote share of the radical right,

increases in immigrant inflows have a positive and statistically significant effect on voting in support of radical right parties. Our empirical analysis leads to several other findings including that the share of second-generation immigrants negatively affects anti-immigrant votes, while similarly to previous studies, cultural distance between natives and immigrants is a significant determinant of the electoral support for the radical right.

This study is organized as follows: Section 2 provides the theoretical background of our study and reviews the related literature. Section 3 describes our dataset and explains the methods used to perform the analysis. Section 4 presents the results of our empirical analysis. Finally, Section 5 provides a discussion of our findings and offers some conclusions.

4.2 Theoretical Framework

4.2.1 Identify radical right parties

As implied by the previous section, different labels such as 'extreme-right', 'right-wing populist', 'far-right' and 'radical-right' are used to refer to the same family of parties in both the academic and pubic spheres of political discourse. Although an in-depth discussion about this battle of terminology is beyond the scope of this study, one question that needs to be answered is how the ideology, and thus the classification of a political party, is determined. As proposed by Mudde (2007), all members of the populist radical right party family share some core ideological features. According to the author, these parties are characterized first by a strong nationalist orientation, second by xenophobia, third by an authoritarian attitude and finally by a populist rhetoric.

In this study, we follow Wagner and Meyer (2017) to identify which political parties may be classified as radical right in the Netherlands. The authors based their classification on information derived from the Manifesto Project[23], which analyzes parties' electoral manifestos

[23] More information about the Manifesto Project can be found at https://manifesto-project.wzb.eu/.

and categorizes them according to their policy preferences and positions. According to Wagner and Meyer (2017), there are two parties that may be classified as members of the radical right party family for the time period that our sample covers. These parties are the *Lijst Pim Fortuyn* (LPF) and *Partij Voor de Vrijheid* (PVV)[24]. For the rest of this study, we use the term 'radical right' to refer to these political parties.

4.2.2 Explanations of voting for radical right parties

There are several demand-side and supply-side explanations of the electoral success of radical right parties (Norris, 2005; Koopmans *et al*. 2005; Van der Brug and Fennema; 2007 & 2009; Golder, 2016). Demand-side explanations focus on individual-level factors that determine voting in support of these parties, whereas supply-side explanations highlight the importance of a strong party organization and other external factors such as political opportunity structures. According to the literature, a 'demand' for radical right parties can be generated as a reaction to the transition to a post-modern society (Ignazi, 1992). This argument claims that support for the radical right can be derived from people with strong conservative moral values who are against post-materialist values such as gender equality, sexual freedom and cultural pluralism, or from individuals who are opposite to the general trend of globalization.

Another demand-side explanation of the radical right's success emphasizes the role of ethnic competition between natives and immigrants. First, competition over scarce economic sources becomes quite intense when there is an increasing number of immigrants and generates strong anti-immigrant attitudes within a society (Scheve and Slaughter, 2001; Mayda, 2006). These attitudes can become even more negative during periods of economic recession, which are characterized by high unemployment or increasing inequality, as the local population blame the 'out-group' members for the poor economic conditions (Lubbers *et*

[24] For a more detailed discussion on the historical background and the organizational structure of the contemporary radical right in the Netherlands see Van Holsteijn (2018).

al. 2002; Golder, 2003). Second, ethnic competition between natives and immigrants might be motivated by differences in social norms and cultural values, including religious beliefs and customs. Thus, the socio-cultural aspect of ethnic competition supports the idea that immigration can be perceived as a threat to the ethnic identity and social cohesion of the native population (O'Rourke and Sinnott, 2006; Dustmann and Preston, 2007).

Finally from the demand-side, the electoral success of radical right parties can be explained as a result of strategic voting. This can encourage particular coalition-building (Givens, 2005), and is often a protest vote based on the assumption that voters for these parties are against the political regime or generally disaffected from the established political elites (Van den Brug *et al*., 2005; Norris, 2005).

Although sufficient demand is an important prerequisite for the radical right parties to succeed, supply-side factors can further explain why some of those parties eventually perform better than others. First, internal supply-side explanations include party-specific characteristics and organizational features. More specifically, a charismatic leadership or the ability of the party to effectively link crucial socio-economic issues, such as security concerns and high unemployment, to immigration appears to play a crucial role in the success of radical right parties and the consolidation of their political power (Williams, 2006; Mudde, 2007).

External supply-side explanations focus on exogenous factors, particularly on political opportunity (Van den Brug *et al*., 2005; Mudde, 2007; Golder, 2016). Kitschelt (1995) argues that the radical right parties can perform well when the mainstream right parties converge to the centre, thereby providing available political space for the radical right to occupy. Electoral rules, too, can create favourable political conditions for the emergence of radical right parties. Electoral systems that translate votes proportionately into parliamentary seats encourage both the formation and success of small political parties such as the radical right (Norris, 2005; Givens, 2005). Koopmans *et al*. (2005) contend that institutional opportunities offered by

citizenship regimes and other integration politics can also significantly affect the mobilization of radical right parties. Finally, another external factor that might influence the support of these parties is their media coverage. The way that the media frames the position of the radical right in the public sphere can be critical in determining its electoral success (Mudde, 2007; Ellinas, 2010; Golder, 2016).

As presented above, immigration can be part of both demand-side and supply-side explanations of the radical right's success. The subsection that follows provides the framework for understanding further how immigration determines the success of radical right parties, both directly through the ethnic competition between natives and immigrants and indirectly by immigration being used as a scapegoat by political actors.

4.2.3 Natives' attitudes towards immigration

The existing literature distinguishes between economic and non-economic channels through which are determined both the attitude of individuals towards immigrants and thus demand for the radical right. In particular, public opinion on immigration seems to be shaped by both labour market conditions and welfare system characteristics (Scheve and Slaughter, 2001; Hanson *et al*. 2007; Dustmann and Preston, 2007; Facchini and Mayda, 2009), and by social or cultural factors within the local community (Mayda, 2006; O'Rourke and Sinnott, 2006).

Economic theory suggests that immigration has a profound impact on the labour market by affecting the potential wages and the employment opportunities of natives. On one hand, immigration may depress the wages and decrease the job opportunities of some unskilled natives or those workers for whom migrants' labour can be considered a possible substitute (Card, 2001; Borjas, 2003; Card, 2005; Dustman *et al*., 2013). On the other hand, immigration can have a positive effect on the average wage of native workers as many of them benefit from task specialization and skill complementarities among natives and

immigrants (Peri and Sparber, 2009; Ottaviano and Peri, 2012; Docquier *et al*., 2013; Peri, 2014).

In addition, because of the redistributive effects of taxes and benefits there are important fiscal consequences of immigration in receiving countries. The participation of immigrants in the social security system and welfare programs may have significant fiscal spillover effects through the contributions that foreigners pay and the public benefits they receive (Lee and Miller, 2000; Dustmann *et al*., 2010; De la Rica *et al*., 2015). Consequently, natives who benefit economically from the presence of immigrants in the country are likely to support more open immigration policies, while those who are negatively influenced by them tend to prefer the restriction of immigrant inflows (economic competition theory).

Beside the economic determinants, the literature emphasizes the importance of social and cultural factors in shaping public attitudes. Increasing immigration imposes non-economic negative externalities on the local society by changing the composition of the host country's population. Therefore, natives' attitudes toward immigrants are likely to be influenced by concerns about 'compositional amenities' associated with immigrants having common language, customs and religion within their neighborhoods or workplaces (Card *et al*., 2012). Furthermore, racial prejudices that claim immigrants are more likely than natives to be involved in criminal activities have been a cause for additional security concerns (Mayda, 2006).

Cultural distance between natives and immigrants may also affect individual attitudes toward immigration. The different values and perceptions held by people coming from other ethnic backgrounds can be perceived as a threat to the national identity and culture of the native population (O'Rourke and Sinnott, 2006; Dustmann and Preston, 2007). As stated by Dustmann and Preston (2001), increasing immigrant inflows can determine individual attitudes toward immigration in two different ways. According to the authors, frequent contact

and social interaction with immigrants could eliminate the existing racial prejudices of natives (contact theory). But a high concentration of immigrants in local society is also likely to be perceived as a threat to ethnic identity and cultural values of the indigenous population (conflict theory).

Additionally, natives' attitudes toward immigrants, which in turn determine their political preferences and voting behaviour, can be also indirectly shaped or manipulated by politics (Norris, 2005). Radical right parties often target immigrants as the cause of several problems such as high unemployment, increasing crime rates or other security threats such as terrorism (Williams, 2006). Therefore, public attitudes on immigration might be instrumentally shaped by the anti-immigrant rhetoric of some political actors. Consequently, as already suggested, ethnic competition between natives and immigrants can generate a direct demand for radical right parties. But at the same time, supply-side factors, such as the skill of political actors in associating immigration with many of the problems of society, can determine the extent to which public demand for the radical right is developed. In this way, the impact of international immigration on the electoral support of radical right parties can be seen as a result of inherent interaction between demand and supply factors. This might be a plausible explanation for any conflicting findings across case studies from different countries.

4.3 Empirical findings of prior research[25]

Previous research has shown that in recent decades in Europe the size of immigrant population has had a serious impact, in terms of both strength and significance, on radical right voting (Lubbers *et al*., 2002; Davis and Deole, 2017). Several recent empirical studies find a significantly positive effect of immigration on the electoral support for radical right parties in many European countries.

[25] In this subsection, to maintain consistency with the terminology of the literature, we refer to the political parties with the same label that the authors use in their studies.

More specifically, Otto and Steinhardt (2014) find that an increase in the share of foreigners, defined by citizenship, within a city district of Hamburg is associated with an increase in electoral support for xenophobic extreme right-wing parties. Using data from the Austrian regions, Halla *et al*. (2017) find that the presence in one's neighborhood of immigrants, measured again as residents without Austrian citizenship, has a positive and significant effect on votes for the extreme right. Additionally, the authors find that this result is driven by the presence of low- and medium-skilled immigrants. Furthermore, Harmon (2017) shows a positive and significant effect for changes in the percentages of non-nationals in Danish municipalities on changes in the electoral support for the country's anti-immigrant nationalist parties. Similarly, the findings of Gerdes and Wadensjö (2010) for Danish municipalities indicate that increases in the share of non-Western immigrants (born outside the EU and OECD countries) within a municipality leads to the country's two anti-immigration parties winning votes in the local elections.

Using data from Swedish municipalities, Rydgren and Ruth (2011) also conclude that the proportion of foreign-born immigrants is positively related to electoral support for the radical right-wing party in the country. However, when the authors distinguish between EU and Non-EU immigrants, contrary to their expectations, they do not find any significant evidence that a higher proportion of Non-EU immigrants in a municipality increases electoral support for the radical right. In their recently published study for Switzerland, Brunner and Kuhn (2018) show that the share of culturally different immigrants, based on their country of origin, significantly affects voting in favour of that country's right-wing party, while the number of culturally similar immigrants does not seem to be a significant determinant of natives' voting behaviour in Swiss communities. In another study for Spain, Mendez and Cutillas (2014) find that in Spanish provinces changes in the foreign-born population, but

only from African countries, are positively correlated with changes in the ratio of the vote for anti-immigration formations in the presidential elections.

Providing evidence from the municipalities of Italy, Barone *et al*. (2016) find that a higher share of foreign-born immigrants within the municipality increases votes at national elections for the centre-right coalition which has a political agenda less favourable to immigrants. In addition, the authors show that the positive effect of immigration on anti-immigrant voting is stronger in those municipalities where religious diversity is stronger. Furthermore, using data from the presidential elections that took place in France in 2012 and applying a multilevel analysis, Rojon (2013) reveals a positive relationship between the share of foreign-born immigrants and the level of support for the extreme-right party '*Front National*', at the departmental level of the country's administrative divisions. However, according to the author, the above relationship turns negative at the level of communes which is the lowest administrative level in France. Finally, the results of Becker and Fetzer (2016) suggest that a UK district that experiences a large inflow of immigrants from Eastern European countries, due to accession of new members states to the EU, experiences a significant increase in the vote share of the anti-immigration '*UK Independence Party*' in European parliament elections.

From the findings summarized in the literature review above, it appears that both stock and inflows of immigrants (in terms of country of birth or nationality) are positively associated with electoral support for radical right parties. In addition, much of the prior empirical research has found that the type of immigrants (e.g. Western/Non-Western) significantly affects voting in favour of the radical right. In the case of the Netherlands, to the best of our knowledge, no other study has been conducted to empirically examine the impact

of immigration on electoral support for the radical right.[26] Therefore, this study contributes to the existing literature by providing empirical evidence from the Dutch municipalities. The next section describes the data and methods used in the analysis.

4.4 Data and Methods

4.4.1 Data description

We use a panel dataset that covers 338 Dutch municipalities for which we observe the outcomes of national elections held in the Netherlands in 2003, 2006, 2010 and 2012. Our data are drawn from two different sources.

First, we use information on election results in Dutch municipalities from the Electoral Council (Kiesraad). We restrict our attention to the national elections where only Dutch nationals are eligible to vote.[27] Thus, our dependent variable is the share of votes that the radical right parties of the country, LPF in 2003 and PVV in 2006, 2010 and 2012, got in each municipality in national elections.

Our second source of data is the Central Bureau of Statistics (CBS) of the Netherlands from where we collected demographic data and the other socio-economic information use to construct our control variables. To measure the effect of immigration on election outcomes we use demographic data on both immigrant stock and inflows with respect to country of birth. Therefore, our main independent variables of interest include the stock of immigrants and the number of immigrant inflows, both as a share of total population in each municipality. In addition, we distinguish the stock of immigrants between first and second-generation immigrants. According to the CBS, a first-generation immigrant is defined as a person born

[26] A similar study is that of Koopmans and Muis (2009) which examines the effect of immigration on public opinion support for Pim Fortuyn in 2002. Contrary to what the authors expect, they conclude that immigration did not affect the opinion polls during the election campaign.

[27] According to the 'Maastricht Treaty' of European Union (EU) foreigners from EU countries who are residents of the Netherlands are also allowed to vote in local municipal and European Parliament elections.

abroad and having at least one parent born abroad. A second-generation immigrant is any person born in the Netherlands having at least one parent born abroad. Moreover, we further differentiate between western and non-western immigrants. This categorization of immigrants is made by CBS on the basis of their socio-economic and cultural characteristics. In particular, CBS counts as western immigrants those persons who come into the Netherlands from countries in Europe (excluding Turkey), North America, Oceania, Indonesia and Japan. Non-western immigrants are those individuals who migrate from countries in Africa, Latin America, Asia (excluding Indonesia and Japan) and Turkey.

In addition, we introduce a set of control variables in our empirical analysis to account for differences between Dutch municipalities. Following previous literature (Gerdes and Wadensjö, 2010; Otto and Steinhardt, 2014; Harmon, 2017), first we use population density and share of pensioners as socio-demographic control variables. Moreover, to control for differences across municipalities in labour market conditions and the qualification levels of citizens, we include the unemployment rate and the percentage of the active and non-working population with higher levels of education. Furthermore, the average value of houses in each municipality is used as a proxy for its economic prosperity.

Finally, additional control variables are used as a robustness check. To capture the effect of crime on electoral support for the radical right, for each municipality we consider the number of suspects detained after a recorded criminal incident. In addition, voter turnout, which may affect election results through its disproportionate effect on different parties, is included in our robustness analysis. Table 4.1 provides descriptive statistics for all variables included in the analysis.

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	SD	Min	Max
Radical Right Vote share	1,352	9.09	5.46	1.68	38.70
Total Immigrants share	1,352	13.55	7.81	2.06	52.43
Foreign-Born share	1,352	6.40	4.49	1.00	36.80
Second-Generation share	1,352	7.15	3.61	1.06	21.89
Western Immigrants share	1,352	7.81	4.38	1.01	49.11
Non-Western Immigrants share	1,352	5.75	5.22	0.47	36.96
Foreign Born & Western share	1,352	3.07	2.37	0.38	34.14
Foreign Born & Non-Western share	1,352	3.32	3.03	0.29	21.03
Second-Gen. & Western share	1,352	4.73	2.36	0.63	16.58
Second-Gen. & Non-Western share	1,352	2.42	2.25	0.16	16.25
Total Immigrant Inflows share	1,352	0.44	0.48	0.00	4.93
Western Inflows share	1,352	0.25	0.29	0.00	2.53
Non-Western Inflows share	1,352	0.19	0.27	0.00	4.26
Pensioners share	1,352	15.67	3.11	6.53	27.70
Highly-Educated share	1,352	22.36	7.29	0.00	50.00
Unemployment rate	1,352	4.57	0.96	3.00	10.50
Population Density (inhabitants per km^2)	1,352	776.54	913.50	3.50	5,115.70
Average House Value (in thousand Euro)	1,352	220.54	75.51	76.00	672.00
Crime Suspects (per 10,000 inhabitants)	1,352	105.52	37.94	23.00	295.00
Voter Turnout	1,352	79.90	5.43	62.63	100.00

4.4.2 Empirical strategy

To empirically investigate the relationship between immigration and electoral support for radical right parties in Dutch municipalities we estimate the following linear regression model:

$$Y_{it} = \alpha + IM_{it}\beta + X'_{it}\gamma + v_i + \eta_t + \varepsilon_{it}$$

where i indicates municipalities and t indicates election year ($t = 2003, 2006, 2010, 2012$). The dependent variable Y_{it} is the share of valid votes for radical right parties and the independent variable of interest IM_{it} is the share of immigrants over total population or alternatively the number of immigrant inflows, occurring during the election year,[28] as a share of total population. X'_{it} is a vector of control variables aim to capture economic and other socio-demographic differences across municipalities. In addition, the model includes municipality fixed effects v_i to control for all unobserved differences between municipalities that remain constant over the years, and time fixed effects η_t to account for potential cyclical trends such as changes in political preferences at the country level. [29] Finally, ε_{it} represents the error term of the regression which captures all other factors that might affect voting for radical right parties.

As we see above, our regression model includes two different measures to capture the effect of immigration on the vote share of radical right parties. The first measure is the total stock of immigrants that has accumulated over the years in Dutch municipalities and the second is the number of immigrant inflows to municipalities during the year of the election. Although the two measures are related (r=.53), they assess different aspects of the same phenomenon. The difference between them is that the stock variable measures the longer-term

[28] For the years 2006, 2010 and 2012 when the national elections took place in the second half of the year, or close it, we use the number of immigrant inflows occur during the election year. For the national elections of 2003 which held in late January, immigrant inflows of the year before the election year are used.

[29] Because to control for municipality-specific effects the use of a linear estimation model is required, we do not implement any non-linear estimation approach in our analysis.

effects of immigration and the longer-term changes in stock of immigrants, whereas immigration inflows can capture the short-term effect of immigration on the electoral support for the radical right. As newcomers are more likely to generate stronger negative attitudes toward immigration, due to integration and assimilation issues, the two measures might generate different results.

So far, we have indicated that we focus our analysis on the national elections because only Dutch nationals are eligible to vote in them. However, immigrants who have been naturalized and become Dutch citizens are also allowed to vote in these elections. The fixed effects setting of the model presented above allows us to assess variation within Dutch municipalities while accounting for stable unobserved heterogeneity. Therefore those immigrants who are naturalized, and thus eligible to vote, but who have been residing in the same municipality over the study period, will not directly impact the effect of the immigrant share on election outcomes. Thus, our fixed effects approach will minimize the potential confounding effect of the vote of the naturalized immigrant population that could otherwise skew the coefficient estimates. However, our estimates will capture the impact of the group of immigrants who obtain Dutch citizenship during the study period.

4.5 Results

4.5.1 Fixed-Effects Estimates of Immigrant Stock and Inflows

Table 4.2 reports the correlations of all variables used in the study. Table 4.3 presents the fixed-effects estimates of the effects of immigrant stock on electoral support for the radical right. All models are estimated with robust standard errors clustered at the municipality level to account for potential heteroscedasticity and within panel serial correlation of the idiosyncratic error terms. Model 1 includes control variables only. We see that the share of pensioners in the total population of municipality has a positive and statistically significant

effect, at the two-sided one percent level of significance, on the success of radical right parties. More specifically, a one percentage point increase in the share of pensioners within a Dutch municipality increases the vote share of the radical right by .449 percentage points. Nevertheless, population density and the average value of houses, representing the economic prosperity of municipalities, are found to have the opposite effect. The magnitude of these estimated effects, however, appears to be negligible. Finally, the estimated impacts of the share of highly educated and the unemployment rate appear to be insignificant. A plausible explanation of why, contrary to what we would expect, the share of the highly educated remains statistically insignificant across all the models, could be the fixed effect setting of our model. Since the fixed effects allow us to assess variation within Dutch municipalities, it might be possible that the coefficient of the variable is found statistically insignificant due to there being little variance in the share of highly educated within a municipality. The same might hold for the unemployment rate.

In Model 2, the share of immigrants' variable is added to the regression. Nevertheless, we do not find any significant relationship between the total share of immigrants living in the municipality and electoral support for radical right parties. Models 3 and 4 include instead the shares of first- and second-generation immigrants, respectively. Our results show that although the share of foreign-born immigrants does not affect the electoral outcomes, the share of second-generation immigrants has a negative and strongly significant impact on the success of the radical right. More precisely, our estimate indicates that a one percentage point increase in second-generation share decreases the vote share of radical right parties by 1.103 percentage points.

Furthermore, in Model 5 we differentiate between western and non-western immigrants. We find that the share of western immigrants has a strong negative and statistically significant effect on voting for the radical right, at the two-sided one percent level

of significance. In particular, a one percentage point increase in the share of western immigrants decreases the vote share of radical right parties by .771 percentage points. On the contrary, the share of non-western immigrants is found to have a weak but positive impact on the success of the radical right with a statistically significant coefficient of .185, at the two-sided ten percent level of significance. Finally, in Models 6 and 7 we further distinguish the western and non-western immigrants into first- and second-generation, respectively. We find no significant correlation between the share of foreign-born western immigrants and voting for the radical right, although the coefficient has a negative sign. However, the results suggest that a one percentage point increase in the share of foreign-born non-western immigrants is associated with an increase of .428 percentage points in the electoral support for radical right parties. The results in the last column of the table demonstrate that the share of second-generation non-western immigrants has no significant impact on voting for the radical right, while the share of second-generation western ones has a very strong negative and statistically significant coefficient of about -3.8, at the two-sided one percent level of significance.

Table 4.2 Correlation Matrix

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)	Radical Right Vote share	1.00																			
(2)	Total Immigrants share	0.22	1.00																		
(3)	Foreign-Born share	0.17	0.97	1.00																	
(4)	Second-Generation share	0.28	0.96	0.86	1.00																
(5)	Western Immigrants share	0.25	0.77	0.72	0.78	1.00															
(6)	Non-Western Immigrants share	0.13	0.85	0.85	0.77	0.32	1.00														
(7)	Foreign Born & Western share	0.19	0.75	0.78	0.65	0.93	0.34	1.00													
(8)	Foreign Born & Non-Western share	0.10	0.85	0.87	0.76	0.34	0.99	0.37	1.00												
(9)	Second-Gen. & Western share	0.27	0.68	0.55	0.80	0.92	0.25	0.71	0.25	1.00											
(10)	Second-Gen. & Non-Western share	0.17	0.82	0.81	0.77	0.29	0.99	0.30	0.96	0.23	1.00										
(11)	Total Immigrant Inflows share	0.07	0.53	0.62	0.38	0.43	0.44	0.54	0.49	0.25	0.35	1.00									
(12)	Western Inflows share	0.14	0.52	0.60	0.38	0.51	0.35	0.64	0.38	0.29	0.30	0.86	1.00								
(13)	Non-Western Inflows share	-0.03	0.38	0.45	0.26	0.21	0.40	0.26	0.46	0.12	0.30	0.84	0.44	1.00							
(14)	Pensioners share	0.24	0.04	0.01	0.08	0.28	-0.18	0.24	-0.18	0.29	-0.17	0.07	0.13	-0.00	1.00						
(15)	Highly-Educated share	0.05	0.32	0.30	0.32	0.21	0.30	0.19	0.29	0.20	0.30	0.22	0.22	0.16	0.13	1.00					
(16)	Unemployment rate	0.20	0.60	0.59	0.57	0.39	0.57	0.38	0.58	0.34	0.55	0.34	0.29	0.29	0.16	0.09	1.00				
(17)	Population Density	0.11	0.64	0.62	0.61	0.34	0.67	0.32	0.67	0.31	0.66	0.29	0.26	0.23	-0.08	0.35	0.33	1.00			
(18)	Average House Value	0.21	-0.11	-0.13	-0.07	-0.02	-0.15	-0.02	-0.18	-0.01	-0.11	0.00	0.11	-0.11	0.40	0.40	-0.29	-0.11	1.00		
(19)	Crime Suspects	0.02	0.59	0.59	0.54	0.24	0.68	0.24	0.68	0.20	0.65	0.23	0.16	0.23	-0.26	0.03	0.48	0.47	-0.34	1.00	
(20)	Voter Turnout	-0.61	-0.47	-0.44	-0.48	-0.34	-0.42	-0.31	-0.41	-0.33	-0.43	-0.20	-0.21	-0.12	-0.15	-0.03	-0.62	-0.25	0.09	-0.30	1.00

Table 4.3 Fixed Effects Estimates of Immigrant Shares

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
Highly-Educated Share	.005	.004	.005	.002	.007	.006	.006
	(.015)	(.015)	(.015)	(.014)	(.015)	(.015)	(.014)
Pensioners Share	.449***	.392***	.480***	.207*	.370***	.448***	.286**
	(.120)	(.122)	(.121)	(.123)	(.118)	(.122)	(.114)
Unemployment Rate	-.099	-.003	-.154	.289	-.095	-.197	.168
	(.268)	(.247)	(.261)	(.230)	(.248)	(.265)	(.224)
Population Density	-.004*	-.003	-.004*	-.001	-.003	-.004*	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Average House Value	-.056***	-.056***	-.056***	-.057***	-.052***	-.056***	-.046***
	(.007)	(.007)	(.008)	(.007)	(.006)	(.007)	(.006)
Total Immigrants Share		-.130					
		(.111)					
Foreign-Born Share			.142				
			(.136)				
Second-Generation Share				-1.103***			
				(.248)			
Western Immigrants Share					-.771***		
					(.288)		
Non-Western Immigrants Share					.185*		
					(.109)		
Foreign-Born & Western Share						-.248	
						(.315)	
Foreign-Born & Non-Western Share						.428**	
						(.180)	
Second-Gen. & Western Share							-3.775***
							(.661)
Second-Gen. & Non-Western Share							-.302
							(.202)
Constant	10.30***	12.02***	9.40***	18.00***	15.63***	10.32***	26.79***
	(3.37)	(3.79)	(3.54)	(3.98)	(4.30)	(3.73)	(4.30)
Number of municipalities	338	338	338	338	338	338	338
Observations	1,352	1,352	1,352	1,352	1,352	1,352	1,352
R-squared	.879	.880	.880	.884	.882	.880	.892

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

Table 4.4 reports the fixed-effects estimates of the impact of immigrant inflows on electoral support for radical right parties. For ease of comparison, the first model of the table repeats the results from Model 1 of Table 4.3 including only control variables. Model 2 adds to the equation the number of immigrant inflows as a share of the total population of each municipality. We find that the share of immigrant inflows has a positive and statistically significant effect on voting for the radical right, at the two-sided one percent level of significance. In particular, our estimate indicates that a one percentage point increase in the share of total immigrant inflows increases the vote share of radical right parties by .657 percentage points. Finally, in Model 3 we distinguish between western and non-western immigrant inflows. Our results suggest no significant association between the share of western immigrant inflows and electoral support for radical right parties. However, the share of non-western immigrant inflows is found to have a strong positive and statistically significant coefficient of about 1.02, at the two-sided five percent level of significance.

Table 4.4 Fixed Effects Estimates of Immigrant Inflows

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**
Highly-Educated Share	.005 (.015)	.006 (.015)	.006 (.015)
Pensioners Share	.449*** (.120)	.497*** (.120)	.480*** (.119)
Unemployment Rate	-.099 (.268)	-.123 (.268)	-.139 (.266)
Population Density	-.004* (.002)	-.004* (.002)	-.003* (.002)
Average House Value	-.056*** (.007)	-.056*** (.007)	-.057*** (.008)
Total Immigrant Inflows Share		.657*** (.242)	
Western Immigrant Inflows Share			.076 (.445)
Non-Western Immigrant Inflows Share			1.017** (.424)
Constant	10.30*** (3.37)	9.42*** (3.37)	9.79*** (3.38)
Number of municipalities	338	338	338
Observations	1,352	1,352	1,352
R-squared	.879	.880	.881

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

4.5.2 Robustness Checks

To check the robustness of our results we first estimate alternative specifications of our model by including additional control variables. We introduce in our model controls for crime and voter turnout as described previously in subsection 3.2. Each variable is subsequently added to a separate specification, but we also test them jointly. Tables A1 and A2 in the Appendix present the results with additional controls. The magnitude and significance level of the estimates do not change much indicating that our results are robust to the inclusion of additional control variables.

Furthermore, as an additional robustness test the outliers are excluded from our sample. More precisely, we drop from our dataset the municipalities of Amsterdam, Ruchpen and Vaals as they appear to have highly disproportionate shares of immigrants or vote shares of radical right parties. Table A3 and A4 in the Appendix report the estimates obtained when we exclude the outliers. We see that our results hold also in a subsample that excludes the outlier municipalities. Consequently, both robustness checks we perform confirm the validity of our estimates.

Finally, to investigate how our results differ after the agglomeration of Dutch municipalities at a higher regional level, we re-run the regression analysis presented in Table 4.3 and Table 4.4 using data from CBS on the 40 COROP[30] regions of Netherlands. We observe that in Table 4.3 some of our main explanatory variables, such as the share of foreign-born, non-western immigrants, are less significant while some others, such as the share of second-generation immigrants and the shares of western and non-western immigrants, become statistically insignificant. Similarly, in Table 4.4 the total share of immigrant inflows, as well as the shares of western and non-western immigrant inflows, although appearing with the expected positive sign, lose their statistical significance. A reasonable explanation for these findings is that COROP regions are too large for the effects proposed by contact and conflict theory to be observed within these borders, since it is likely that people are affected mostly by immigrants living or coming into their municipality and into the neighbouring ones.

4.5.3 Endogenous Location Decisions

Up to this point in our analysis we have not taken into consideration that the location decisions of both natives and immigrants are determined by individual preferences and thus

[30] In Dutch the abbreviation stands for ***Co****ördinatiecommissie* ***R****egionaal* ***O****nderzoeks****p****rogramma*, literally the Coordination Commission Regional Research Programme, which is equivalent to NUTS-3 geocode standard of Eurostat.

are not exogenous. Natives are likely to react against increasing concentration of immigrants in their municipality by "voting with their feet" and moving to a different house. If this is the case, our results might underestimate the true effect of immigration on voting for radical right parties. To address for any potential bias arising from native relocation choices, we estimate a model of the internal migration decisions of natives as suggested by Peri and Spaber (2011). In their study, the authors introduce a microsimulation methodology to test for native displacement due to immigration. Following their approach, we estimate the following model:

$$\frac{N_{it} - N_{it-1}}{Pop_{it-1}} = \alpha + \beta \frac{(I_{it} - I_{it-1})}{Pop_{it-1}} + v_i + \eta_t + \varepsilon_{it}$$

where N_{it} and I_{it} is the number of natives and immigrants respectively, in municipality i at time period t, and Pop_{it-1} is the total population of municipality at time $t-1$. The model is estimated using yearly changes between 2000 and 2012.

Table 4.5 presents our estimated results. As in the studies of Otto and Steinhardt (2014) and Halla *et al*. (2017), for the districts of Hamburg and Austrian regions respectively, we do not find any evidence for native displacement because of immigrant concentration. However, the results of both of our models indicate a positive and strongly significant correlation between immigration and natives' location choices. A more likely interpretation of these findings is that large or booming municipalities tend to attract both immigrants and natives (Card, 2007).

With respect to the location decisions of immigrants, as Otto and Steinhardt (2014) clearly state, there are two different trends. On one hand, immigrants are likely to relocate in more liberal municipalities that appear to be more open and friendly towards them and avoid areas where citizens hold xenophobic attitudes. On the other hand, due to economic constrains they might be forced to move into poor suburb municipalities which traditionally constitute

the core of strong anti-immigrant sentiments. Therefore, since the two effects could offset each other any potential bias in our estimation results is expected to be small.

Table 4.5 Natives' Location Choices

Dependent Variable: $(N_{it} - N_{it-1})/Pop_{it-1}$	**Total Immigrants**	**Foreign-born Immigrants**
Explanatory Variable: $(I_{it} - I_{it-1})/Pop_{it-1}$	3.931*** (1.112)	4.539*** (1.283)
Number of municipalities	338	338
Observations	4,056	4,056
R-squared	.227	.114
$\mathbf{F}_{(12,337)}$	2.83	2.41

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. Both models include municipality and time fixed effects.

4.6 Discussion and Conclusions

The purpose of this study is to examine the effect of immigration on electoral support for radical right parties in the Netherlands. We contribute to the existing literature by providing empirical evidence from 338 Dutch municipalities for which we observe the outcomes of national elections held in the Netherlands in 2003, 2006, 2010 and 2012.

Several theories seem to explain how individual attitudes towards immigrants, and thus demand for the radical right, is determined. First, economic competition theory suggests that natives who benefit from the presence of immigrants in the country are likely to support more open immigration policies, while those who are negatively affected by them tend to prefer the restriction of further immigration. Second, with respect to social and cultural considerations, conflict theory proposes that cultural distance and different values between natives and immigrants could be perceived as a threat to ethnic identity of the local population. Third, contact theory contends that frequent contact and more interaction with immigrants eliminate racial prejudices and cause natives to hold less negative attitudes toward

them. Finally, some scholars argue that natives' attitudes toward immigrants, which in turn determine their political preferences and voting behaviour, might be instrumentally manipulated by the anti-immigrant rhetoric of some political actors. Based on these theories, we develop our empirical model to investigate how immigrant stock and inflows affect electoral support for the radical right in Dutch municipalities.

Among existing empirical literature there is none that differentiates between first- and second-generation immigrants. Apart from this contribution, as the literature indicates has been done before (Gerdes and Wadensjö, 2010; Rydgren and Ruth, 2011; Brunner and Kuhn, 2018), we also distinguish immigrants according to their ethnic background into western and non-western. Our results show that neither increases in the overall immigrant share nor increases in the share of foreign-born immigrants within a municipality affect voting for radical right parties. Similarly, Mendez and Cutillas (2014) find that increases in the total immigrant population within Spanish provinces do not have a significant impact on electoral support for the radical right. In addition, Brunner and Kuhn (2018) conclude that the total immigrant share does not affect the voting behaviour of Swiss citizens. Yet, previous research has found that a higher proportion of foreign-born immigrants (Barone *et al*., 2016) or an increase in the share of non-nationals (Otto and Steinhardt, 2014; Harmon, 2017;) within a municipality or a city district increases anti-immigrant votes. The findings of some other studies are similar, showing that the presence of immigrants, defined by citizenship (Halla *et al.*, 2017) or country of birth (Rydgren and Ruth, 2011), in one's area is positively related to electoral support for the radical right party in the country. On the contrary, our results indicate that an increase in the share of second-generation immigrants within a Dutch municipality has a negative and substantial impact on voting for the radical right. This finding can provide some support for the contact hypothesis, given that second-generation immigrants generally have more frequent contact and interaction with the native population in the neighbourhoods,

schools or workplaces, therefore eliminating previous discriminatory behaviours and racial prejudices. However, another plausible explanation of this result could be that individuals with immigrant backgrounds, who obtain Dutch citizenship during the study period and are therefore eligible to vote, are much less likely to vote in favour of radical right parties.

Furthermore, our outcomes point out the importance of the country of origin of immigrants. In particular, we find a strong negative effect of growing shares of western immigrants on the support for radical right parties while an increase in the share of non-western immigrants within a municipality increases their electoral success. These findings can be explained by conflict theory which puts emphasis on the cultural differences between natives and immigrants. In addition, non-western immigrants are more likely to compete in the labour market with low-skilled natives who are inclined to vote in favour of the radical right, or to depend on welfare state provisions, and thereby generate stronger anti-immigrant attitudes toward them. Thus, economic competition theory can provide some additional explanations for these findings.

When we further distinguish the western and non-western immigrants into first- and second-generation, we find no significant association between rising concentration of foreign-born western immigrants and electoral support for radical right parties. However, our results suggest that an increase in the share of foreign-born non-western immigrants within a municipality leads to a higher share of the vote for the radical right. These findings are in line with those of Gerdes and Wadensjö (2010) who find that increases in the shares of non-western immigrants within Danish municipalities increase the votes of the two anti-immigration parties of the country. In addition, Mendez and Cutillas (2014) show that within Spanish provinces an increase in the foreign-born population, although only those from African countries, increases support for the anti-immigration formations of the country. Similarly, Brunner and Kuhn (2018) find that the presence of culturally different immigrants

in Swiss communities affects voting in favour of the country's radical right party, while culturally similar immigrants have no effect on natives' voting behaviour. With respect to second-generation immigrants, we find that increases in the shares of those of western origin have a negative and substantial impact on voting for the radical right. And to the contrary, an increase in the share of second-generation, non-western immigrants within a Dutch municipality is not found to have any statistically significant effect. Thus, the overall negative effect of growing shares of second-generation immigrants on electoral support for the radical right seems driven by the western immigrants.

Finally, although as stated above we do not find any significant effect of an increase in the share of foreign-born immigrants on the vote in support of the radical right, our estimate suggests that an increase in immigrant inflows increases the vote share of radical right parties. This result implies that is not so much the longer-term effect of immigration but its short-term impact that is important for explaining anti-immigrant voting. In other words, it seems to be the increase in the number of newcomers, relative to the population size, that poses a greater threat to natives, and is in turn reflected in their voting decisions. Moreover, our results indicate that the positive effect on electoral support for the radical right of an increase in immigrant inflows seems to be driven mainly by the influx of non-western immigrants. This is similar to the findings of Becker and Fetzer (2016), which show that a UK district experiencing a large inflow of immigrants from Eastern European countries experiences a significant increase in the anti-immigration party's share of the vote.

The findings of this study might have important implications for immigration policy. The Netherlands is a country which is well known for its diverse and multi-ethnic population but also for its multicultural approach to immigrant integration (Duyvendak and Scholten, 2011). However, the Dutch government has a general integration policy framework which means that there are no specific strategies in place aimed at particular groups of immigrants or

specific events (Fischler, 2015). Since our results indicate that it is mainly the non-western immigrants who lead to an increase in the vote for the radical right in Dutch municipalities, policy makers are advised to develop the existing immigration policies in a way that targets certain groups of immigrants, primarily those who are culturally different. We argue that this could not only facilitate integration of immigrants into Dutch society but also contribute to reducing xenophobia in local communities. In addition, as our findings show that increases in immigrant inflows lead to an increase in electoral support for radical right parties, we would recommend that policy makers reorganize the current system accordingly so as to be able to respond effectively to a potential large influx of immigrants in the future.

Of course, the present study is not without limitations. First, immigrants in this study are distinguished, with respect to their country of origin, between western and non-western immigrants. However, future work could break down the group of non-western immigrants further in order to investigate how our results might vary across different subgroups. For example, of particular interest would be attempts to examine the effect on electoral support for radical right parties of immigrants coming from Islamic countries, who traditionally have strong religious and cultural differences with the native population. Moreover, in terms of future research, it would be particularly helpful to systematically theorize and investigate how municipality characteristics moderate the impact of immigration on voting behaviour. For instance, it would be quite interesting to explore whether the prior political climate of the municipality affects the direction or strength of the relation between immigration and the vote in favour of the radical right. Since our results seem to be explained by several different factors, a further exploration of the mechanisms linking immigration to radical right voting can yield important insights into the interpretation of our existing findings. Finally, an interesting extension of this work would be to additionally assess the impact of the recent

refugee crisis in Europe, which is not captured in our sample, on the vote share of the radical right.

To conclude, we believe that the research outcomes of this study make a significant contribution to the empirical academic literature. At the same time, since important implications emerge from these results, our findings could also be a useful tool for policy making in Dutch municipalities.

Appendix to Chapter 4

Table A1 Fixed Effects Estimates of Immigrant Shares – Additional Control Variables

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
Highly-Educated Share	.006	.005	.006	.002	.008	.007	.006
	(.015)	(.015)	(.015)	(.014)	(.015)	(.015)	(.014)
Pensioners Share	.439***	.378***	.470***	.195*	.360***	.441***	.277**
	(.118)	(.121)	(.120)	(.121)	(.117)	(.122)	(.112)
Unemployment Rate	-.096	.004	-.146	.296	-.089	-.188	.179
	(.262)	(.243)	(.257)	(.225)	(.244)	(.262)	(.219)
Population Density	-.003*	-.003	-.004*	-.001	-.003	-.004*	-.001
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Average House Value	-.056***	-.056***	-.056***	-.057***	-.052***	-.056***	-.046***
	(.008)	(.007)	(.008)	(.007)	(.006)	(.007)	(.006)
Crime Suspects	.005	.006	.005	.006	.004	.004	.003
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)
Voter Turnout	.008	.002	.015	.017	-.003	.015	.021
	(.070)	(.070)	(.068)	(.068)	(.072)	(.070)	(.068)
Total Immigrants Share		-.138					
		(.112)					
Foreign-Born Share			.137				
			(.140)				
Second-Generation Share				-1.107***			
				(.249)			
Western Immigrants Share					-.763***		
					(.281)		
Non-Western Immigrants Share					.172		
					(.111)		
Foreign-Born & Western Share						-.233	
						(.313)	
Foreign-Born & Non-Western Share						.412**	
						(.189)	
Second-Gen. & Western Share							-3.762***
							(.659)
Second-Gen. & Non-Western Share							-.312
							(.200)
Constant	9.08	11.36*	7.70	16.07**	15.42**	8.68	24.70***
	(6.57)	(6.74)	(6.56)	(6.52)	(7.06)	(6.71)	(6.69)
Number of municipalities	338	338	338	338	338	338	338
Observations	1,352	1,352	1,352	1,352	1,352	1,352	1,352
R-squared	.880	.880	.880	.884	.883	.880	.892

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

Table A2 Fixed Effects Estimates of Immigrant Inflows – Additional Control Variables

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**
Highly-Educated Share	.006 (.015)	.007 (.015)	.006 (.015)
Pensioners Share	.439*** (.118)	.487*** (.118)	.470*** (.117)
Unemployment Rate	-.096 (.262)	-.118 (.263)	-.130 (.261)
Population Density	-.003* (.002)	-.003* (.002)	-.003* (.002)
Average House Value	-.056*** (.008)	-.056*** (.007)	-.057*** (.008)
Crime Suspects	.005 (.004)	.005 (.004)	.005 (.004)
Voter Turnout	.008 (.070)	.013 (.067)	.023 (.067)
Total Immigrant Inflows Share		.658*** (.246)	
Western Immigrant Inflows Share			.065 (.443)
Non-Western Immigrant Inflows Share			1.031** (.450)
Constant	9.08 (6.57)	7.79 (6.36)	7.39 (6.26)
Number of municipalities	338	338	338
Observations	1,352	1,352	1,352
R-squared	.880	.881	.881

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

Table A3 Fixed Effects Estimates of Immigrant Shares – Excluding the Outliers

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
Highly-Educated Share	.009	.009	.009	.006	.012	.010	.012
	(.015)	(.015)	(.014)	(.014)	(.014)	(.014)	(.013)
Pensioners Share	.390***	.342***	.426***	.154	.327***	.407***	.236**
	(.118)	(.118)	(.118)	(.118)	(.113)	(.120)	(.110)
Unemployment Rate	-.076	-.012	-.143	.332	-.071	-.169	.182
	(.266)	(.238)	(.256)	(.226)	(.241)	(.263)	(.219)
Population Density	-.004*	-.003	-.004*	-.002	-.003	-.004*	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Average House Value	-.055***	-.054***	-.055***	-.055***	-.051***	-.055***	-.043***
	(.008)	(.007)	(.008)	(.007)	(.006)	(.007)	(.006)
Total Immigrants Share		-.116					
		(.109)					
Foreign-Born Share			.170				
			(.126)				
Second-Generation Share				-1.103***			
				(.251)			
Western Immigrants Share					-.770**		
					(.319)		
Non-Western Immigrants Share					.183*		
					(.110)		
Foreign-Born & Western Share						-.123	
						(.333)	
Foreign-Born & Non-Western Share						.368**	
						(.185)	
Second-Gen. & Western Share							-3.922***
							(.668)
Second-Gen. & Non-Western Share							-.255
							(.201)
Constant	10.76***	12.25***	9.74***	18.31***	15.89***	10.39***	27.56***
	(3.36)	(3.79)	(3.53)	(3.98)	(4.42)	(3.79)	(4.26)
Number of municipalities	335	335	335	335	335	335	335
Observations	1,340	1,340	1,340	1,340	1,340	1,340	1,340
R-squared	.884	.885	.885	.889	.887	.888	.898

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

Table A4 Fixed Effects Estimates of Immigrant Inflows – Excluding the Outliers

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**
Highly-Educated Share	.009 (.015)	.011 (.014)	.010 (.014)
Pensioners Share	.390*** (.118)	.437*** (.112)	.420*** (.115)
Unemployment Rate	-.076 (.266)	.107 (.266)	-.115 (.263)
Population Density	-.004* (.002)	-.004 (.002)	-.004* (.002)
Average House Value	-.055*** (.008)	-.055*** (.008)	-.055*** (.008)
Total Immigrant Inflows Share		.653*** (.243)	
Western Immigrant Inflows Share			.039 (.455)
Non-Western Immigrant Inflows Share			.974** (.418)
Constant	10.76*** (3.36)	9.94*** (3.35)	10.30*** (3.36)
Number of municipalities	335	335	335
Observations	1,340	1,340	1,340
R-squared	.884	.886	.886

Robust standard errors, clustered at the municipality level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include municipality and time fixed effects.

Table A5 Fixed Effects Estimates of Immigrant Shares – COROP Regions

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
Highly-Educated Share	.037	.035	.045	.049	.036	.051	.012
	(.119)	(.116)	(.111)	(.119)	(.120)	(.115)	(.013)
Pensioners Share	1.562**	1.683**	1.699***	1.298*	1.708**	1.703***	.236**
	(.616)	(.648)	(.951)	(.683)	(.646)	(.590)	(.110)
Unemployment Rate	.354	.225	.201	.630	.027	.069	.182
	(.532)	(.527)	(.545)	(.546)	(.523)	(.564)	(.219)
Population Density	.012	.009	.005	.015	.012	.006	-.002
	(.011)	(.012)	(.012)	(.010)	(.012)	(.013)	(.002)
Average House Value	-.069**	-.067**	-.068***	-.066**	-.062**	-.068***	-.043***
	(.027)	(.027)	(.025)	(.026)	(.024)	(.024)	(.006)
Total Immigrants Share		-250					
		(.315)					
Foreign-Born Share			.955*				
			(.502)				
Second-Generation Share				-.772			
				(.593)			
Western Immigrants Share					-.601		
					(.753)		
Non-Western Immigrants Share					.557		
					(.409)		
Foreign-Born & Western Share						.516	
						(.783)	
Foreign-Born & Non-Western Share						1.386*	
						(.706)	
Second-Gen. & Western Share							-8.973***
							(1.56)
Second-Gen. & Non-Western Share							.138
							(.464)
Constant	-17.23	-20.65	-22.356	-10.82	-17.71	-23.40	24.31
	(16.29)	(17.36)	(15.80)	(18.08)	(17.68)	(15.82)	(12.47)
Number of COROP Regions	40	40	40	40	40	40	40
Observations	160	160	160	160	160	160	160
R-squared	.927	.928	.930	.929	.929	.931	.943

Robust standard errors, clustered at the regional level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include region and time fixed effects.

Table A6 Fixed Effects Estimates of Immigrant Inflows – COROP Regions

Dependent Variable: Radical Right Votes Share	**Model (1)**	**Model (2)**	**Model (3)**
Highly-Educated Share	.037	-.024	-.034
	(.119)	(.124)	(.129)
Pensioners Share	1.562**	1.521**	1.352**
	(.616)	(.620)	(.579)
Unemployment Rate	.354	.617	.582
	(.532)	(.593)	(.559)
Population Density	.012	.004	.005
	(.011)	(.012)	(.011)
Average House Value	-.069**	-.065**	-.070***
	(.027)	(.024)	(.025)
Total Immigrant Inflows Share		2.369	
		(1.603)	
Western Immigrant Inflows Share			.867
			(1.905)
Non-Western Immigrant Inflows Share			5.057
			(3.021)
Constant	-17.23	-14.095	-11.94
	(16.29)	(16.18)	(15.73)
Number of COROP Regions	40	40	40
Observations	160	160	160
R-squared	.927	.932	.934

Robust standard errors, clustered at the regional level, in parentheses *** p<0.01, ** p<0.05, * p<0.1; two-sided t-test. All models include region and time fixed effects.

Chapter 5
Conclusion

In this doctoral dissertation, we have developed three empirical studies to investigate how immigration and cultural diversity have affected the economic, social and political life of European regions in recent years. In an increasingly diverse world where the total number of international migrants is growing, knowing the consequences of migration and the impact of diversity is extremely important. These two issues – international migration and cultural diversity – have therefore prompted a huge amount of scientific research, on both a conceptual and an empirical level.

This dissertation has attempted to contribute to the existing literature by providing a better understanding of specific aspects of the impacts of international migration and cultural diversity on host societies in Europe.

Specifically, Chapter 2 empirically investigated the relationship between cultural diversity and economic performance in 74 regions of 12 European countries. We also tested how the impact of cultural diversity on regional economic performance is affected by the level of generalized social trust and by the level of trust that individuals have in their public institutions. Chapter 3 examined public attitudes toward immigrants in 78 regions of 16 European countries. More specifically, we explored whether the origin of immigrants' and their skill level drive public sentiment to be more or less anti-immigrant. Finally, in Chapter 4 we investigated how the stock of immigrants and the immigrant inflows to 338 Dutch municipalities affect electoral support for the country's radical right parties.

In this concluding chapter, we first briefly summarize the main findings from our three empirical studies. Next, we outline the major contributions of this doctoral

dissertation to the growing body of literature. We conclude by presenting the limitations of our research work and discussing several directions for future research.

5.1 Summary of Empirical Findings

This section summarizes the most important findings from our three empirical studies. In Chapter 2, we estimated a fixed-effects linear regression model to explore the impact of cultural diversity on economic performance in 74 European regions over the period 2004 to 2012. In addition, we investigated the role of generalized social trust as a moderator in this relationship. We also examined whether the effect of cultural diversity on regional economic performance is influenced by the level of individuals' trust in public institutions. Our empirical results indicated that it is not the size but the diversity of the foreign population that is positively correlated with regional income. With regard to the interaction effects of our analysis, we found that in regions with low levels of generalized social trust, the benefits of foreigners' diversity are insignificant, while in regions with high levels of generalized social trust, the benefits are apparent. Our findings for individuals' trust in institutions were similar.

Chapter 3 investigated, on a fairly large sample of respondents from 78 European regions over the period 2004 to 2012, how the origin and skill level of immigrants affect natives' attitudes toward them. Furthermore, we examined whether there is any interaction effect between the size and the skill level of immigrant population. Our results showed that the proportion of immigrants in a given region does not appear to be a significant factor in shaping attitudes toward immigration. However, we found that immigrants' origin does seem to be a substantial determinant. Moreover, although our empirical results did not reveal any significant direct effect of immigrants' skill level on attitudes toward them, we found some moderating effect between the size and the skill level of immigrant population in shaping natives' attitudes toward immigration. More precisely, we found that the

positive effect of immigrants' presence on natives' anti-immigrant attitudes, with respect to the country's economy and culture, is stronger in regions where the percentage of low-educated immigrants is higher.

In Chapter 4, we examined the impact of international immigration on electoral support for the radical right in 338 Dutch municipalities during the decade 2003-2012. This investigation concluded that, although an increase in the share of foreign-born immigrants within a municipality does not increase the vote share of country's radical right parties, increases in immigrant inflows have a positive and statistically significant effect on voting in support of the radical right. Additionally, our results indicated that an increase in the share of second-generation immigrants within a Dutch municipality has a negative and substantial impact on voting for the radical right. Furthermore, our outcomes highlighted the importance of the country of origin of immigrants. In particular, we found a strong negative effect of growing shares of western immigrants on the support for radical right parties while an increase in the share of non-western immigrants within a municipality increases their electoral success. Similarly, our results indicated that the positive effect on electoral support for the radical right of an increase in immigrant inflows seems to be driven mainly by the influx of non-western immigrants.

Consequently, the results of all three empirical studies seem to be quite consistent and move in the same direction. Overall, the findings of this doctoral dissertation are that is not the size of the foreign population that matters in each case but the type of immigrants.

5.2 Contributions to Existing Literature

The three empirical studies of this dissertation have contributed to the corresponding literature in a number of ways. In this section we indicate what has been added to the body of literature by each chapter.

First, to answer what determines whether the economic outcomes of cultural diversity in the European regions are positive or negative, Chapter 2 empirically investigated the role of generalized social trust as a moderator in the relationship between cultural diversity and regional economic performance. To the best of our knowledge, Kemeny (2012) is the only previous study which examines the moderating role of generalized trust in the above relationship, but for the US metropolitan areas only. In addition, in this chapter we explored how the level of trust individuals have in their public institutions affects the impact of cultural diversity on regional economic performance. We know of no other study that examines the role of institutional trust as a moderator in this relationship.

As regards operationalization of cultural diversity, following Alesina et al. (2016a), we decomposed our cultural diversity variable into a component that measures the share of foreigners over total population and a component which captures the diversity among foreigners. Whereas previous research that examines the impact of cultural diversity on macroeconomic performance in European regions has largely focused on the overall effect of diversity (Audretsch *et al*., 2010; Niebuhr, 2010; Brunow and Brenzel, 2011; Dohse and Gold, 2014), this chapter is among the few studies (Ozgen *et al*., 2011; Bellini *et al*., 2013) that distinguish between the size of the foreign population in each region and the diversity arising from the variety and the relative size of foreign groups.

With respect to Chapter 3, while much existing research has tended to explore public attitudes toward immigrants with a focus on the individual characteristics of those holding the views (Mayda, 2006; O'Rourke and Sinnott, 2006; Facchini and Mayda, 2008; Pardos-Prado, 2011), our work considered characteristics of the immigrants themselves as a driving factor in attitudes toward immigration. More specifically, this chapter built on previous empirical research that examines the impact of regional factors on European attitudes towards immigrants (Schlueter and Wagner, 2008; Rustenbach, 2010; Markaki

and Longhi, 2013; Bridges and Mateut, 2014; Weber, 2015) and attempted to investigate how the characteristics of immigrants affect public sentiment. Our work in this chapter is similar to that conducted by Markaki and Longhi (2013), as both studies examine the impact of contextual factors, and more precisely immigrants' origin (EU/non-EU) and immigrants' skill level (low/highly-educated), on anti-immigrant attitudes in European regions. However, our study differs by distinguishing non-European immigrants living in a region into six different groups of origin, and this is our main empirical contribution to the literature.[31] In addition, we extended our analysis by including an interaction term in our model to capture any moderating effect between the size and the skill level of the immigrant population.

Regarding operationalization, some previous studies in the literature have used the regional percentages of foreign-born (Markaki and Longhi, 2013; Weber, 2015), while other studies prefer to use the proportions of non-nationals in a region (Schlueter and Wagner, 2008; Bridges and Mateut, 2014) in order to identify the size of the regional 'outgroup' population. As both measures have pros and cons (Coenders, 2001), exploring the detailed information provided by the EU-LFS, we chose to base our measurement of the share of the foreign population in a region simultaneously on individuals' nationality and country of birth. However, we also used the separate shares of foreign nationals and foreign-born as alternative measures. This comparison served to highlight the importance of operationalization for a better understanding of 'ingroup-outgroup' nexus in future studies.

Finally, Chapter 4 contributed to the growing literature on immigration and political preferences by providing empirical evidence from Dutch municipalities. In the case of the Netherlands, as far as we know, no other study has been conducted that

[31] Note that we extensively present how we differentiate ourselves from the authors in the corresponding chapter.

empirically examines the impact of immigration on electoral support for the country's radical right parties. Furthermore, the rich database of CBS enabled us to include in our analysis not only the stock of immigrant population in each municipality, but also the inflows of international immigrants. Therefore, in this chapter we differentiate ourselves from previous empirical research (Otto and Steinhardt, 2014; Halla *et al*., 2017; Harmon, 2017; Brunner and Kuhn, 2018) by exploring and comparing both the short-term effect of immigration (immigrant inflows) and its longer-term impact (immigrant stock) on the vote share of the radical right. This distinction is important because it allows us to capture different effects of the same construct and thus provides us with a deeper and more comprehensive understanding of how international immigration affects voting behaviour. Lastly, in this chapter we also distinguish between first- and second-generation immigrants. This is the only empirical study of the related literature that makes this distinction.

5.3 Limitations, Future Research and Implications

Beside the various contributions described above, this doctoral dissertation has, of course, several limitations that offer opportunities for future research. Nevertheless, this dissertation also suggests some important implications for society.

In Chapter 2, we assumed that all of the cultural groups we defined are equidistant to one another. Some could argue, however, that important dissimilarities exist between certain cultures compared to others. Therefore, an interesting extension of this chapter would be to find a way to account for cultural distances between cultural groups and control for the degree of their integration. In addition, further research could be conducted to explore how our results might vary across different segments of the labour force, especially when broken down according to skill level. Third, the fact that our analysis is based on data from 74 European regions suggests that our results may not be entirely

representative for other geographical areas, which limits the generalizability of our findings.

However, the empirical results of this chapter indicate that both the level of trust that people place in strangers and the trust that individuals have in political and social institutions can play an important role in catalysing the potential benefits of foreigners' diversity. One straightforward policy recommendation we can draw from these findings is that culturally heterogeneous regions of Europe need to encourage individuals' trust in other people in order to reap the benefits of diversity. Past research provides evidence that a high level of generalized trust is associated with less corruption (La Porta, 1997), better education systems and less ethnically fragmented societies (Alesina and La Ferrara, 2002; Leigh, 2006). We would therefore recommend that decision makers prevent corruption in public organizations, invest in education and promote the efficient integration of foreigners into local communities. At the same time, policy makers in European regions are advised to encourage people's trust in public institutions, for instance by improving the general credibility of their country's parliamentary bodies, the efficiency of their legal systems and the performance of their police authorities.

With regard to limitations of Chapter 3, first, using the EU-LFS data we are not actually able to measure second-generation immigrants, neither by the share of foreign-born nor by the share of foreign nationals in a region. However, many second-generation immigrants are not fully integrated into the local communities and might be discriminated against although they have been naturalized. Moreover, our study examines anti-immigrant attitudes without focusing on a specific segment of the native population. Thus, an interesting extension of this work will be to examine cross-level interaction effects and investigate how the origin or skill level of immigrants interacts with the education level, employment status or political affiliation of natives. Finally, following the main results of

this chapter, future work may examine degrees of cultural distance and identify the factors that comprise cultural differences. It may be interesting to know if it is ideology, traditions, experiences, religious practice or other traits that prove most important in the mind of the attitude holder who perceives cultural distance. More in-depth knowledge of the immigrant traits that drive anti-immigrant attitudes could help to shape integration policies and strategies.

An important insight from Chapter 3, however, emerges in the finding that the origin of immigrants living in a European region appears to be key in influencing natives' attitudes toward immigration. For example, we find Middle East and North African concentrations of non-EU foreigners, which geographically represent the Muslim communities, to elicit the most negative attitudes toward immigrants. This suggests that a greater degree of perceived cultural distance and difference proves decisive in shaping anti-immigrant attitudes. In other words, Muslims are perceived as more divergent in values from European attitude-holders than are Asians or Latin Americans. The more that the values of the immigrants in a region diverge from those of the nationals of that region, the more an immigrant threat is perceived, and this produces a stronger anti-immigrant attitude. These insights could be a useful tool for policy makers in the decision-making process in European regions.

Finally, Chapter 4 also suffers from some limitations. First, with respect to their country of origin, immigrants in this chapter are distinguished into western and non-western immigrants. However, future work could break down the group of non-western immigrants further in order to investigate how our results might vary across different subgroups. For example, it would be of particular interest to examine the effect on electoral support for radical right parties of those immigrants who come from Islamic countries and who traditionally have strong religious and cultural differences with the native population.

Moreover, in terms of future research, it would be particularly helpful to systematically theorize and investigate how municipality characteristics moderate the impact of immigration on voting behaviour. For instance, it would be of interest to explore whether the prior political climate of the municipality affects the direction or strength of the relationship between immigration and the vote in favour of the radical right. Since our results seem to be explained by several different factors, a further exploration of the mechanisms linking immigration to the vote for the radical right could yield important insights into how our existing findings might be interpreted. Finally, an interesting extension of this work would be to additionally assess the impact of the recent refugee crisis in Europe on the vote share of the radical right. This is not captured in our sample.

Nevertheless, the findings of Chapter 4 might have important implications for immigration policy. The Dutch government has a general integration policy framework which means that there are no specific strategies in place aimed at particular groups of immigrants or specific events (Fischler, 2015). Since our results indicate that it is mainly the non-western immigrants who lead to an increase in the vote for the radical right in Dutch municipalities, policy makers are advised to develop the existing immigration policies in a way that targets certain groups of immigrants, primarily those who are culturally different. We argue that this could not only facilitate integration of immigrants into Dutch society but also contribute to reducing xenophobia in local communities. In addition, as our findings show that increases in immigrant inflows lead to an increase in electoral support for radical right parties, we would recommend that policy makers reorganize the current system accordingly so as to be able to respond effectively to a potential large influx of immigrants in the future.

To conclude, it is hoped that the three empirical studies that comprise this dissertation offer valuable insights into our understanding of how international

immigration and cultural diversity affect the life of the host societies in Europe. It is our wish that this doctoral dissertation will provide inspiration and new horizons for future research in the field of international immigration.

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Nederlandse Samenvatting

Deze doctoraatsthesis bestaat uit drie empirische studies (Hoofdstukken 2-4) in het domein van Internationale Immigratie.

Hoofdstuk 2: Culturele diversiteit en economische prestatie: De modererende rol van vertrouwen

Het doel van deze studie is om de relatie tussen culturele diversiteit en economische prestatie empirisch te onderzoeken in 74 regio's tijdens de periode 2004-2012. Om contradictorische resultaten in voorgaand onderzoek te helpen uitklaren, introduceren we het concept van gegeneraliseerd sociaal vertrouwen als een moderator van deze relatie. Ook onderzoeken we de modererende rol van het vertrouwen van individuen in instituties. Onze empirische resultaten wijzen uit dat het niet de omvang van een buitenlandse populatie (aandeel allochtonen) is dat belangrijk is, maar de bredere variëteit van die populatie (diversiteit van de allochtone populatie), dewelke positief geassocieerd is met regionaal inkomen. We stellen ook vast dat in regio's met een laag niveau van gegeneraliseerd sociaal vertrouwen de voordelen van diversiteit van de allochtone populatie afwezig zijn; terwijl in regio's met een hoog niveau van gegeneraliseerd sociaal vertrouwen de voordelen van diversiteit van de allochtone populatie significant zijn. Onze bevindingen voor het vertrouwen van individuen in instituties zijn gelijklopend.

Hoofdstuk 3: De origine van immigranten en opleidingsniveau als factoren in attitudes tegenover immigranten in Europa

Deze studie neemt de publieke attitudes ten opzichte van immigranten in 78 Europese regio's gedurende de periode 2004-2012 onder de loep. Specifiek onderzoeken we hoe karakteristieken van immigranten, zoals hun origine (EU/non-EU) en hun opleidingsniveau (laag/hoog opgeleid), publieke anti-immigratie gevoelens aandrijven. Deze studie bevindt dat voor immigranten die in een Europese regio leven, hun origine een significante

bepalende factor is voor publieke attitudes tegenover immigratie. Onze empirische resultaten wijzen ook uit dat er geen significant direct effect is van het opleidingsniveau van immigranten op attitudes gericht naar hen. Desalniettemin nemen we wel een interactie-effect waar van de omvang van de populatie met het opleidingsniveau van de populatie op het vormen van de attitudes van autochtone inwoners ten opzichte van immigratie.

Hoofdstuk 4: Immigratie en electorale steun voor radicaal rechts: Bewijs van Nederlandse gemeenten

Het doel van deze studie is om te onderzoeken hoe het reeds aanwezige aandeel aan immigranten en de instromen van immigranten in Nederlandse gemeenten de verkiezingssteun voor de nationale radicaal rechtse partijen beïnvloeden. Onze dataset is samengesteld uit gegevens van 338 Nederlandse gemeenten en omvat de vier nationale verkiezingen die plaatsvonden in het land gedurende het decennium van 2003-2012. De resultaten van deze studie indiceren dat, hoewel een toename aan eerste generatie immigranten in een gemeente het aandeel aan stemmen voor radicaal rechts niet doet stijgen, een toename in instromen aan immigranten een statistisch significant positief effect heeft op stemgedrag ten voordele van radicaal rechtse partijen. Onze empirische analyse onthult ook verscheidene andere bevindingen, onder meer dat het aandeel aan tweede generatie immigranten het aandeel aan anti-immigrant stemmen negatief beïnvloedt, terwijl, in lijn met voorgaande studies, we vinden dat de culturele afstand tussen autochtonen en immigranten een significante determinant is van de verkiezingssteun voor radicaal rechts.